THE IMPACT OF DISRUPTIVE INNOVATION ON THE DEMAND FOR COWORKING SPACE

by

Johan Bronkhorst
BRNJOH039

A Minor Dissertation
presented to the

Department of Construction Economics and Management
in partial fulfilment of the requirements for the degree
MSc in Property Studies

February 2020

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Abstract

This thesis investigates whether the phenomenon of companies that seek to disrupt markets through innovation play a role in the rise of coworking spaces. The city of Cape Town in South Africa was selected as the location for this study due to an increase in the establishment of coworking spaces and the appearance of the aforementioned phenomenon. The premise for this thesis is based on the demands for commercial real estate, which has changed as a result of the implementation of new technologies and the sharing economy. This change is argued to have altered the way companies utilise working environments which, in turn, amended the requirements of these companies. The study seeks to establish whether coworking spaces serve as adequate supply to these demands or whether the increase in the establishment of coworking spaces is unaffiliated.

Grounded theory was used as the research method in this study. Semi-structured interviews were conducted with seven respondents that were all active founders of coworking spaces at the time of the study. Additional documentary evidence was collected in cases where it was available. An analysis of the responses indicates that there is a strong relationship correlation between the rise of disruptive innovation and the increase in available coworking spaces. This relationship correlation was based on the value that flexibility, affordability and community facilitation held for companies that associate with disruptive innovation. These companies were mainly start-ups, skunkworks teams, research and development departments and other forms of companies that primarily work within the industry of technology. Limitations to the study included that additional documentary evidence was limited due to poor record-keeping of active memberships by coworking space operators, in addition to restrictions that were placed on accessing company information such as revenue statements.

The research findings provide academic support and market-related evidence to developers and investors within the real estate sector that could enable them to make more informed decisions relating to the supply of coworking spaces. Moreover, the findings shed light on the general views shared by the founders of the coworking spaces. These views should provide insight to those interested in the industry, and more specifically within the Cape Town region.

Keywords: Coworking, Disruptive Innovation, PropTech, Emerging Market, Real Estate Investment, Facilities Management, Commercial Property, Offices, Internet of Things, Information and Communications Technology.

Acknowledgements

The journey to complete this dissertation was filled with both unexpected surprises and challenges. I would not have been able to reach this milestone without the support of my family, friends, mentors and colleagues.

In particular, I would like to thank the following people:

To my supervisor – Dr Kathy Michell, for your guidance and support throughout the entire process. I greatly appreciate the extent to which you had made yourself available for academic feedback and especially for reflection. Thank you for accepting the role of being my supervisor and for having played such a vital part in my academic journey.

To my network and all of the respondents who willingly took part in this research - Your availability, insights and kindness made it possible to successfully investigate a topic that was still in the early stages of maturity at the time that my research initiated. Thank you kindly for taking part in my research.

To my wife – Louisa, who's emotional support had consistently increased over the course of my research. I cannot thank you enough for standing by my side and being there in the moments that counted.

To my immediate family – Linda, Johannes and Corné. Your advice and encouragement meant a great deal, and I will always be grateful for the time and support you have provided me.

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Definitions

Axial Coding – A type of coding that is used to identify significant relationships between codes to align and delimit these codes with the most suitable categories in order to formalise the overall structure of the categories (Charmaz, 2006:60).

Categories – Overarching themes under which sub-themes are aligned based on the relationship each holds to another. The researcher uses these categories to merge or distinguish between data (Strauss and Corbin 1990:420).

Categorising – The act of assigning codes to specific categories. This process involves the researcher's integrity to determine a set of factors according to which categories can be distinguished between (Charmaz, 2006:30).

Central or **Core Category** – The main theme that emerges from the research is known as the core category. The core category represents the central phenomenon that integrates the related categories and concludes the process of theory development. The categories that emerge from the data can through some way be related back to the core category (Strauss and Corbin 1990:424).

Coding – A form of inductive analysis to extrapolate significant themes or categories from the data that is collected during fieldwork (Hoepfl, 1997:47-63).

Coworking – A style of work that involved the act of sharing a working environment and the amenities that are available to the users of that environment. Typically these users are employees or self-employed individuals who do not belong to the same organisation. This style of work is typically affiliated with start-ups, freelancers and independent contractors (Seo et al., 2017:1-3).

Coworking Community – A group of individuals or employees who are collectively located at the same coworking space and act in either their own commercial interest or that of their employers (Sagacite, 2017:7-8).

Coworking Space Operator – The entity that manages the operations of a coworking space. This can either be a third-party company or an individual that serves as a limited variation to the role normally performed by facilities manager. Coworking space operators generally oversees finances, coordination with third-parties, community-related activities and the management of the members of the coworking space (Green, 2014:53-54).

Coworking Space – An open office environment that provides flexible access to additional amenities such as meeting rooms, printers and recreational areas. Each space differs from the other, depending on the priorities of the coworking space operator, but almost all have demarcated hot desks (Baum, 2017:46-47).

Disruption - the fundamental principle of disruption depreciates the value of traditionally limited or otherwise inflexible spaces, in that it is an unforeseeable shift for which financial markets are not prepared (Bower and Christensen, 1995:45).

Disruptive Innovation – A concept that describes the unforeseen results of innovative technologies that replace industry and social norms through swiftly gaining popularity. It is generally applicable to all kinds of industries, technologies and companies, but especially with start-ups that endeavour to disrupt their industry vertical (Christensen, 1997:3-4).

Freelancers – An alternative term to the more traditional independent contractor. Generally associated with visually creative industries such as graphic design and marketing, but more recently includes modern job titles such as software developers (Paterson and Preece, 2017).

Grounded Theory - An inductive technique used for qualitative research. The goal of this technique is to identify social phenomena in order to ultimately create a theoretical framework. Data is typically collected through means such as interviews, recordings, documents, observations, and statistics. The data is interpreted according to inductive analysis whereby a coding process extrapolates relevant categories that are used by researchers to formulate relevant theories (Charmaz, 2007:123-133).

Hot Desk – An optional subscription that members of coworking spaces can choose. The subscription limits the member to using demarcated desks that can't be permanently occupied by a single user. The premise of hotdesking allow members to circulate around

the coworking space and use the hot desks that are available at that time. The premise serves as a means for coworking space operators to oversubscribe their memberships and leverage the first-come, first-serve basis on which hot desks are based (Nieman, 2018:38).

Incubator – An incubator or business incubator is an organisation that assist start-ups to achieve their goals. Business incubators offer to train start-ups or to provide access to a working environment or business network. Incubators are typically associated with either the IoT or any resultant disruptive innovation (Ross and Ressia, 2015:46-48).

Open Coding – A process during which patterns among the data are identified and tested through constant comparison in order to uncover any emerging categories (Glaser and Holton, 2007:59).

PropTech – A platform that is developed through technology and that provides solutions within the real estate industry. These solutions can be related to financial management, property valuation, operational management and data aggregation amongst other use cases. It is itself regarded as disruptive innovation (Baum, 2017).

Selective Coding – Selective coding is used to identify and sufficiently elaborate on a core category (Glaser and Holton, 2007:61).

Skunkworks – An act of organisation management whereby a larger organisation provides a small group or team with a beneficial environment and tasks this group with developing new and innovative solutions. These groups are typically associated with research and development (Rogers, 2010:139).

Start-Up – An entrepreneurial venture that aims to develop or offer innovative products, services or processes to meet market demand. Start-Ups are typically early-stage, small commercial businesses that aim to grow rapidly through using an optimised business model (Sagacite, 2017:49).

Theoretical Saturation – The moment during which the coding process fails to provide any additional data and persists in revealing new categories. Data collection stops once theoretical saturation is achieved (Charmaz, 2006:114).

Abbreviations

CAQDAS – Computer Assisted Qualitative Data Analysis Software

CiTi – Cape Innovation and Technology Initiative

CSF – Coworking Space Founder

ICT – Information and Communications Technology

IoT – The Internet of Things

Chapter 1: Background to research

1.1 Introduction

The internet has been described as the mother of all disruptions (Isenberg, 1999) in acting as a catalyst and introducing all markets to a myriad of both social and economic possibilities through the use of technology.

Our use of technology has come a long way in having progressed through the various stages of transformation enabled by Information and Communication Technology (ICT) and the Internet of Things (IoT) principles. Kevin Kelly, author of *The Inevitable: Understanding the 12 technological forces that will shape our future*, describes the various stages as follows: Initially our desktops were tailored after industrialisation by organising work as files hosted by folders. The digital age then introduced us to the web where the IoT principle originated through connecting hyperlinks. More recently we have arrived at a third age that builds on the IoT principle and is dominated by live streams and newsfeed flow (Kelly, 2017). As a result of the third age a "new kind of participation has since developed into an emerging culture based on sharing" (Kelly, 2017:19) that is creating a shift in user demand.

Coworking is one example of this new kind of participation and according to Baum (2017) resulted due to a demand for flexibility by big businesses in responding to a fast-moving economy and rapid development of new technologies. Real estate was thereby introduced to a new model to compete with the traditional commercial office spaces that was becoming obsolete in facing the fast-moving modern world.

"Possession is not as important as it once was" (Kelly, 2017:109) and companies such as Uber and Spotify prove this fact in growing consumerism found within both transportation and entertainment industries. Users are more often choosing to subscribe to services where they can stream or rent content - thereby showcasing their preference to paying for access to services such as transportation by providers like Uber and Lyft. Airbnb and WeWork serve as real estate related examples through their provision of international access to accommodation and commercial office space.

A trait these examples mentioned above share is its label of falling under the category of disruptive technology or disruptive innovation - both terms coined by Christensen (1997).

These shared models of real estate are also known to fall within the emerging market segment known as PropTech – defined on the premise of the sharing economy to be "technology-based platforms which facilitate the use of real estate assets" (Baum, 2017:8). Interestingly, PropTech itself is referred to as a disruptor within the real estate market (Baum, 2017). It could therefore be argued that companies that associate with the notion of disruption are attracted to platforms that are already associated with it.

Michael Latzer, Professor of Communication at the Department of Communication and Media research at the University of Zurich, highlighted Christensen's claim in The Innovator's Dilemma (Christensen) that the concept of disruptive technology is "generally applicable to all kinds of industries, technologies and companies" (Latzer, 2009). Latzer (2009) later states that socio-technological systems can be associated with a "pressure for change" (Latzer, 2009:615) that is being faced by today's firms and industry in order to adapt to both user and industry demand. Researchers have affiliated the coworking model with these new institutional structures that are emerging, while previous structures are adapting in order to fit the user demand for socio-technological environments (Christensen, 1997; Waters-Lynchet et al., 2016).

The Network Hub in Vancouver Canada has described Coworking to redefine existing concepts of the working environment by being routed in what the online *Coworking Manifesto* identifies to be a "participatory culture of the open source movement" (Sy, 2011). Coworking could thereby be described as a special tool for the promotion of a collective, community-based approach. The concept of labor market knowledge shows the coworking phenomenon to be a "new model of work" (Seo et al., 2017:2) in the context of a "collaborative and sharing" (Seo et al., 2017:2) economy.

Bower and Christensen (1995:47) suggested in *Disruptive Technologies: Catching the wave* that the most strategic proposals towards creating disruptive technology had been afforded by companies in their utilisation of project teams at the "lower levels of organisations" (1995:47). He had furthermore stated that the key to success for these teams are in the "organisational context where small orders create energy" (Bower and Christensen, 1995:53) and where "overheads are low enough to permit profit" (Bower and Christensen, 1995:53).

In *Coworking: a transdisciplinary overview*, the users of coworking spaces are categorised to fall within three user-groups. These groups are respectively: “freelancers; early stage entrepreneurs; or start-ups” (Waters-Lynchet et al., 2016:25) and are not specific as to number of employees. This mix of user-groups have been perceived to be an attractive sentiment and the reason for the continual existence of coworking initiatives (Ross and Ressia, 2015). It has been noted however that the “copresence of different types of resources and competences” (Danneels, 2006:3) could lead to detrimental results instead of favourable synergies within the technological realm.

A claim in *The Journal of Product Innovation Management* further suggests that research on the topic of disruptive technology has not proved to be of an adequate interdisciplinary nature in “truly integrating ideas from several disciplines to form a comprehensive and rich understanding of the phenomenon” (Danneels, 2006:3). It could therefore be asked whether users perceive the benefits of coworking spaces to outweigh the potential effects such an environment may bear on the work produced by users during their utilisation of a coworking space.

A definition of the coworking space solution should be reviewed according to current research in order to adequately contextualise the subject matter pertaining to it. Concepts critical to the understanding of coworking and disruptive innovation can be defined in order to undercover the underlying connections between these two paradigms.

1.2 Background to the study

1.2.1 The relevance of coworking

Coworking has been chosen for the purpose of this dissertation due to the central role in which the typology is depicted to play for business incubators within the domain of disruptive innovation (Bower and Christensen, 1995; Waters-Lynchet et al., 2016) in addition to the relevance indicated within existing research pertaining to the relationship between coworking spaces and the integration of ICT and IoT (Ross and Ressia, 2015; Waters-Lynchet et al., 2016; Seo et al., 2017).

There exists a user demand for adequate working environments by companies interested in disruptive innovation (Bower and Christensen, 1995). Coworking facilities in-turn provide a supply of environments that correlate with features that are imperative to the aforementioned

user demand (Spinuzzi, 2012; Uda, 2013; Ross and Blumenstein 2013). These features, as indicated within existing literature, can be summarised to be rentable spaces that are cost effective and thereby reduce company overheads; provide opportunities within which to collaborate (Parrino, 2015; Liegl, 2014); access to high-speed internet connections (Castells 2011; Ross and Blumenstein 2013; Kostakis and Bauwens 2014); effective facilities management; and "supporting management" (Seo et al., 2017:8).

It has been noted within literature that coworking facilities may become a "niche sector, that suits particular types of workers, entrepreneurs and sectors" (Ross and Ressia, 2015:53) with specific reference to information and communication technology and start-up incubators that are associated with either the IoT or any resultant disruptive innovation (Allen and McCluskey, 1990; Bower and Christensen, 1995; Ross and Ressia, 2015; Baum, 2017).

1.2.2 The incorporation of coworking

Twenty-seven percent (27%) of coworking users who took part in the 2017 *Global Coworking Survey* by Deskmag (2016), were in the field of IT. Only seven percent (7%) of users were practitioners within the field of design and 5% in marketing, sales and advertising. Neither percentages are extremely high, but the percentiles indicate that practitioners within the IT-sector are found to frequent coworking spaces, more so than that of design or marketing. Moreover, the *Cornell Real Estate Review* found that "the entrepreneurial coworking space is the fastest growing" (Green, 2014:53) and placed emphasis on corroborative evidence tying back to the IT-sector's employment growth which had reached nearly 30% between 2007 and 2012 (Green, 2014). Google had picked up on this phenomenon and provided an example of a company that famously responded by modifying their physical work environments and their member benefits to become more appealing and meet the new demand for shared spaces (Green, 2014).

Interestingly, institutions and companies such as the Silicon Valley Bank, Dropbox, Ericsson, Accenture and KPMG, to name a few, have been listed to be the most prominent corporate entities who make use of the WeWork coworking spaces (Sargant, 2016). Notably, these companies are all incorporating the IoT with a common goal of disruption. The current commitment of these companies to coworking spaces can be argued to diminish in consideration of employers, such as Google, who are growing wiser to the phenomenon and instead attempting to incorporate attributes of coworking into their own real estate (Sargant,

2016). An example of this would be the Google Campus initiative where coworking spaces are opening up under corporate ownership. Similarly, it was predicted that WeWork might lean towards acquiring ownership and control over their buildings (Baum, 2017).

1.2.3 Future research on the impact of disruptive innovation on coworking

Researchers have noted that the property market can benefit from future research on the potential impact of disruptive innovation on the coworking model while noting the importance of specific areas of focus that result in less generalisation regarding the coworking typology (Spinuzzi, 2012; Ross and Ressia, 2015). The literature provides for broad views on coworking and outlines the generally applicable factors to which users might be attracted, but rarely does so with a particular user group in focus. In identifying a specific user group, this study can introduce another dimension of distinction amongst the literature.

1.3 Problem statement

Based on the substantiated connection between coworking spaces and the growing user demand within the emerging market - sparked by the notion of technological innovation - the applicability and sustainability of coworking spaces will be investigated. To determine whether the provision of rentable space in relation to coworking could be considered as an economically viable supply within the South African commercial sector, the offering of such space must be examined in relation to user demand within the emerging market for disruptive innovation. The problem statement to be investigated in this dissertation is therefore:

The emerging market for disruptive innovation is changing user demand and altering the user's understanding of functional space.

1.4 Research questions

To address the research problem, the research questions are as follows:

What factors of the coworking typology are beneficial to users of functional space within the emerging disruptive technology market?

What is the connection between coworking spaces and the market for innovative disruption?

1.5 Research aim

The aim of this research, in consideration of the aforementioned research questions, is as follows:

To investigate the relationship between the development of coworking spaces in Cape Town and the emerging market of disruptive innovation.

1.6 Research proposition

The research proposition for this dissertation can be stated as:

The relationship between the development of coworking spaces in Cape Town and the emerging market of disruptive innovation can be established.

1.7 Research objectives

To achieve the aforementioned aim of this research, the research objectives can be listed as follows:

1.7.1 Identify which factors of the coworking typology are deemed beneficial to users within the emerging market for disruptive innovation and indicate which factors were decidedly less applicable.

1.7.2 Determine whether coworking spaces hold greater value than traditional commercial office spaces that are owned by incumbent firms.

1.7.3 Determine whether the establishment of coworking spaces in Cape Town should be considered a viable investment by property specialists.

1.8 Research method

A grounded theory methodology was employed, based on the requirements as indicated by a theoretical framework, in order to meet the research objectives of this dissertation. A holistic view can be accomplished by combining multiple techniques, as encouraged within grounded theory, and corroborating the data gathered to triangulate the analysis. In-turn a more informed view of the value and relevance of coworking spaces, with respects to users

demand and host supply in Cape Town, can be offered. The respective research techniques will thereby be established as documented below.

1.8.1 Theoretical and contextual framework

A literature review was undertaken to determine whether any relationship between technological advancement and the use of coworking spaces is evident. The benefits that are attributed to coworking spaces will be identified and elaborated on within the context of a dependence on technology. Finally, a contextual framework will be explored to localise the research within Cape Town.

1.8.2 Qualitative data

A qualitative, semi-structured interview was designed according to the factors that are deemed relevant by the literature. The purpose will be to gain a deeper understanding of the perspective that the founders of coworking spaces have of its offering and utility. The findings of the interviews will be analysed, coded and compiled to create an outline of applicable factors that fit user demand and coworking supply.

1.8.3 Additional documentary evidence

An additional aim was to collect and analyse supporting documentary evidence in order to triangulate the primary data by establishing the background of coworking users and the frequency of their utilisation of coworking spaces. Each interviewee was asked for information around their coworking space membership databases, which could have provided data whereby the users' industry and nature of work can be determined. The findings were evaluated, reviewed and compiled as supporting evidence to the current user-base of coworking spaces.

1.9 Limitations

This dissertation and the research techniques involved will be subject to the following limitations:

The available literature related to the topics that are addressed could prove to be limited as a result of lack of previous research on specific themes.

The acquisition of the right to access and review sensitive company information such as membership databases and/or revenue statements, under the ownership of facility managers or other real estate specialists, could prove to be challenging.

1.10 Delimitations

This dissertation and the research techniques involved will be subject to the follow delimitations:

The broad spectrum of coworking clientele or users can prove to be overwhelming, resulting in conflicting subjective opinions that are not of any value within the scope of this dissertation. The participants in this research should were carefully considered with regards to their dependence on technology and consequent utilisation of coworking spaces.

Creating an unbiased research method that is unaffected by the subjectivity of coworking facility founders could be onerous. Subjective opinions provided by participants may provide for a poor representation of the general sentiment shared among the founders of coworking spaces and be of little relevance to the field of disruptive innovation.

1.11 Assumptions

It is assumed that:

Disruptive innovation is on the increase

The rate at which technology is increasing and recent focus on disruptive technologies have introduced many entrepreneurs to the goal of creating scalable companies with high revenue. It is assumed that the literature and field work will reflect that more companies will form to capitalise on the opportunity to create disruptive products.

An increase in coworking spaces results from an increase in technologically supported working environments

New technologies make remote work and flexible working environments more attractive than before. It is assumed that more companies are able to utilise coworking spaces, without compromising on their productivity or quality of work.

Coworking spaces are attractive working environments due to a combination of affordability, flexibility and supporting environments

Long term leases lock companies in at rates that are typically a large risk for businesses, especially when a company is still in formation or positioned in a country with economic instability. It is assumed that companies would prefer to enter into short term lease agreements, but that the low cost of a working environment will not be the only factor that makes coworking attractive. Flexibility and supporting communities and amenities will play an equally important role.

1.12 Significance of the study

The study is considered significant due to the fact that, at the time of completing the study, no available research at tertiary level in Africa could be found on the correlation between disruptive innovation and the rise in coworking spaces. This is significant as the research provides a unique insight into industry knowledge and the views held by actors that are positioned within the South African economy.

1.13 Structure of research report

This research report is structured according to the following outline:

Chapter 1: Background to research

The first chapter introduces the research report and is followed by background on the subject matter in order to substantiate an underpinning theory. The problem statement is then presented and expanded on through the provision of research questions, the research aim and research proposition. The research objectives are subsequently introduced in addition to the research method and limitations relevant to this study.

Chapter 2: Literature review

The second chapter examined existing literature that focuses on the emerging market for coworking and the influential factors that stimulate user demand. The relevance of ICT and IoT principles have also been explored and discussed. Any applicable and notably general consensus shared among the literature was summarised and included.

Chapter 3: Research methodology

The third chapter elaborated on the research methodology and motivated for its utilisation within this research study. Limitations and data collection were also discussed.

Chapter 4: Data analysis and interpretation

The results of the research study are presented in the fourth chapter.

Chapter 5: Conclusion

The findings of this research study in addition to limitations faced is presented in the fifth chapter. In addition, recommendations for future research are presented with the reflections of the researcher.

Chapter 2: Literature review

The theoretical and contextual framework for the research will be based on the findings extrapolated from relevant literature. The purpose of this literature review is to identify factors that are of benefit to users (members) as well as hosts (founders) of coworking spaces; and relevant to industries that are inclined to disruptive innovation and dependent on either ICT or IoT principles. The degree to which either ICT or IoT principles will be discussed will therefore be limited to its relevance to either coworking facilities or the businesses of its members. The demand for alternative working environments will be discussed on the backdrop of the South-African economy, both on a micro and macro level, in order to provide context and elaborate on the market for coworking facilities.

Section 2.1 will review the relevance of industries that associate with disruptive innovation and provide a basis from which to elaborate on the market for coworking spaces. A description of factors that have been identified within the literature to be of importance to coworking, earmarked by real estate specialists and relevant to users that rely on either ICT or IoT will then be provided in Section 2.2. The factors will be discussed with respect to both user and host; and in terms of social, economic and technological influences. Section 2.3 will address the available literature related to the South-African market for coworking spaces. A summary of this literature review and its findings will be provided in Section 2.4.

2.1 The essentials of an innovative work environment

A review of the nature of innovative work introduces the basis according to which the environment of coworking is deemed relevant. This premise underpins the factors that are argued to play a pivotal role in providing attractive environments for companies that associate with disruptive innovation. However, it is not sufficient in itself to form a comprehension of coworking without elaborating on the underlying motives of the user. It is therefore important to review the relevant industries and corresponding user circumstances that influences the user's demand for functional commercial office space. In doing so, the function of business incubators will provide insights to the value of infrastructure and shared environments.

2.1.1 The nature of work associated with disruptive innovation

Coworking has been described to be designed for people and companies who are inclined to pursue work of a creative or entrepreneurial nature and "who endeavour to break isolation and to find a convivial environment that favours meetings and collaboration" (Moriset, 2014:1).

Interestingly, teams that aim to contribute to the state of disruptive innovation have been indicated to make use of coworking spaces in order to position themselves within a specific type of working environment (Bouwer and Christiansen, 1995; Danneels, 2006; Moriset, 2014). This act of organisational management has been defined by Everret Rogers, a communication theorist and sociologist, as skunkworks, whereby an "enriched environment" (Rogers, 2010:139) is provided to a small group of individuals who are employed by a larger organisation and tasked with finding new and innovative solutions. Despite the importance of the environment in which the group will set out to accomplish this task, emphasis is instead placed on the fact that the team "escapes the usual organisational procedures" (Rogers, 2010:139).

The combined pursuit of breaking isolation and prioritising meetings and collaboration aligns itself with the premise of the sharing economy in that the traditional norms of privacy and containment in the workspace is being challenged (Botsman and Rogers, 2011; Paterson and Preece, 2017). According to the opinion of Kelly, "the shift from hierarchy to networks, from centralised heads to decentralised webs, where sharing is the default, has been the major cultural story of the last three decades" (The Inevitable, 2016:148). In parallel, the impact of such a cultural shift on the working environment could explain why a new wave of "start-up oriented individuals and businesses that recognise the need for innovative and functional space" (Green, 2014:52) look to coworking as a viable solution.

2.1.2 The relationship between business incubators and coworking

An online publication, Deskmag, known for its annual global coworking report suggests that there is a critical difference between coworking and business incubators (Cashman, 2012). In *Coworking incubators: an alternative for start-ups*, Deskmag describes the offering of business incubators to be similar in the provision of office-like environments, but limited in

the period for which entrepreneurs are granted membership (Cashman, 2012). Diversely, coworking spaces offer open offices and flexible memberships to businesses and entrepreneurs alike. These members are also not obligated to achieve time-oriented or industry specific goals as set by separate organisations.

Despite the distinction, business incubators serve as a great example to advocate for the relevance of coworking spaces. Businesses that are supported by incubators are able to optimise development and overcome market barriers, thanks to the provision of resources and professional service support (United Nations Economic Commission for Europe-UNECE, 1999). Similarly, businesses that are looking to improve their success rate turn to coworking spaces in order to position themselves favourably to the market (Jones Lang LaSalle, 2016).

The modern form of the incubator organisations that we know today first appeared around 1972 in the United Kingdom through the creation of optimised working environments (Campbell and Allen, 1987; Ndabeni, 2008). Practices of similar industries could thereby share facilities, complimentary services and management within these environments. The goal of this organisation was to support innovation-oriented entrepreneurship and its means could be likened to early traces of an emerging sharing economy (Campbell and Allen, 1987; United Nations Economic Commission for Europe-UNECE, 1999; Ndabeni, 2008; Dubihlela and Van Schaikwyk, 2014).

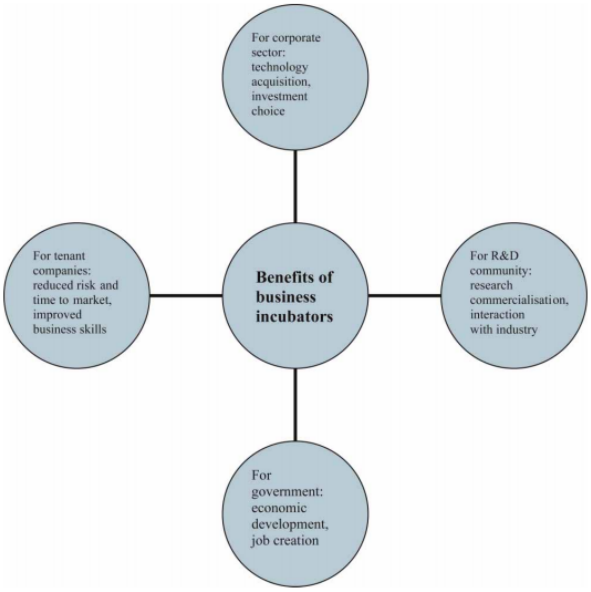


Figure 1: The benefits of business incubators (Ndabeni, 2008:263)

More recently, it is noted that the primary goal of business incubators is to focus on mitigating the risk of early-stage failure for entrepreneurs and start-ups (Ndabeni, 2008) by providing environments that are protected to support business practices and mitigate risk (Buys and Mbewana, 2007). The benefits that entrepreneurs enjoy by way of incubation can be summarised as the provision of access to a supportive business network, financial support, professional and technical guidance, shared business services, and affordable leases to flexible space. In-turn, these entrepreneurial businesses enhance local economic development (Ndabeni, 2008; ILO, 2000). The views of Ndabeni (2008) and Buys and Mbewana (2007) are reflected in that of Rogers (2010) and Green (2014), suggesting that their findings have largely remained accurate over time.

2.1.3 Innovative work environments from a user's perspective

The significance of the two most prominent user groups will be considered to better understand the relevant factors that are dependent on the nature of innovative work. The first group is that of the self-employed, which comprises of freelancers and start-ups. The second, is the skunkworks group that comprises of smaller teams typically associated with the research and development departments of large organisations (The Instant Group, 2018; Yardi Matrix, 2018). The two groups function under a different set of circumstances and have different motives as a result. A distinction must therefore be made in order to assess the demands of each.

The capital outlay of the two user groups could be regarded as the most significant factor that would cause to distinguish between these groups. Freelancers and a majority of start-ups are made up of younger individuals who are not yet supported by investors and prone to subscribing to more affordable membership that, for example, provides access to hot-desking (Paterson and Preece, 2017; Yardi Matrix, 2018). In contrast, skunkworks groups are backed financially by larger organisations that possess over the capital to afford more expensive memberships and obtain private office space (Yardi Matrix, 2018). Private offices in-turn allow for the dual purpose of maintaining secure access over valuable and confidential intellectual property while still being located in an enriched environment of likeminded individuals (Rogers, 2010; Sagacite, 2017).

A second distinction is evident in the rate at which the presence of each group is expanding. The dependence on remote work is growing due to the availability of online tools that enable

both user groups to provide services through a decentralised network (Arvidsson, 2014; Sagacite, 2017; Cushman and Wakefield, 2018). The most notable increase has been for self-employed individuals, specifically in economically creative areas that require advanced skills and accelerated growth (Waters-Lynch et al., 2016). These areas of the economy are generally associated with professional occupations in the fields of highly advanced information technology (Choi and Varney, 1995).

The literature indicates that the number of users whose work is associated with this type of entrepreneurial innovation or “creative knowledge work” (Waters-Lynch et al., 2016:25) may not be entirely dependent on the limitations of its assigned user group (Gandini, 2015; Waters-Lynch et al., 2016; Sagacite, 2017), but suggests that there is a definitive subgroup of digital oriented businesses amongst coworking members (Waters-Lynch et al., 2016) and a “strong positive correlation between the number of self-employed and the increase in flexible workspace take-up” (Cushman and Wakefield, 2018:46).

Over the past decade there has been an increase of forty-five percent (45%) in self-employment in Europe (Waters-Lynch et al., 2016, Leighton, 2014). More significantly, in recent years between 2012 and 2016, an estimated twenty-three percent (23%) of the youth became self-employed in low-income countries such as South-Africa, whereas approximately seven percent (6,8%) of the youth in middle-income European countries made the transition (ILO global employment trends:3).

It is also revealed that there exists a growing awareness of the benefits of coworking under larger corporations that deploy skunkworks teams and, moreover, provides a clear indication of a growing market under the younger self-employed group. At the time of this literature review, both millennial generations, Generation-Y (Gen-Y) and Generation-Z (Gen-Z) are specified to be at the appropriate age (see Figure 2) to be considered as the primary target market for flexible work space (Green, 2014; Paterson and Preece, 2017). Their dependency on technology, predilection for socially charged settings and related behavioral patterns are inferred to be a prominent driver for challenging traditional design of functional space. (The Instant Group, 2018, Paterson and Preece, 2017). As a result, corporations are more readily willing to increase expenditure in favour of amenities and higher churn rates for leases (Yardi Matrix, 2018) for staff that exceed their capacity at their current offices.

Generation	Year of Birth#
Baby Boomers	1945 – 1964
Gen X	1965 – 1979
Gen Y	1980 – 2000
Gen Z	2001 - Present

Figure 2: Description of generations (Paterson and Preece, 2017:3)

Finally, notes on a survey between the two user groups have indicated a notable commonality in that both groups are becoming more at ease with less personal space (Paterson and Preece, 2017). A reduced amount of personal space between coworkers infers the occurrence of physical proximity, in-turn producing "relational proximity that leads to increased knowledge exchange" (Ross and Ressia, 2015:47). This specific occurrence is suggested in *Coworking: assessing the role of proximity in knowledge exchange* to have been particular to the industry of technology (Parrino, 2013). Paterson and Preece (2017) have thereby provided especially synergetic views on the user's perspective regarding innovative work environments.

2.1.4 Innovative work environments from a host's perspective

Entrepreneurs rely on the fundamental provision of access to flexibility and facilitation of a professional community network in order to service the market and enhance their capabilities for innovation and disruptive thinking (Moriset, 2014; Seo et al., 2017; Paterson and Preece, 2017; Sagacite, 2017).

The facilitation of such an environment can rely heavily on the host's dedication to the prioritisation of managerial practices. Development policy and management practice (Seo et al., 2017) are two components of coworking suggested by the literature to strengthen a sense of internal community and provide access to flexibility.

In contrast, traditional commercial office space suffers at a disadvantage due to a lack of services that enhance user familiarity; their preferences; and exposure to new business networks (Kelly, 2017:112-113). The inherent malleable nature of the coworking environment is what allows for host's to meet the requirements of the user (Green, 2014;

Waters-Lynch et al., 2016). Designing environments for connections is thereby becoming increasingly relevant. Spaces should aim to include environments for social collaborations; integrate technologies that support a work/life balance; and support mobile technologies and wireless connection (The Instant Group, 2018).

Hosts are also required to maintain a firm grasp on the industries that utilise their space. Notably, “the tech sector has a larger percentage of start-ups and small entrepreneurial firms that prefer short-term leases” (Yardi Matrix, 2018:6). Tech firms are also indicated to largely possess over a young workforce that supports the basic offering of the coworking environment, provided that the environment is enhanced (Sagacite, 2017; The Instant Group, 2018; Yardi Matrix, 2018).

Interestingly, there has been a fifteen percent increase in the time that founders and owners invest in personally operating their coworking spaces over the six-year period between 2012 to 2018 (The 2018 global coworking survey, 2018). This could suggest that hosts are realising the sensitive nature of enhancing their coworking spaces, meriting an increase in their involvement to personally oversee operations.

2.2 The appeal of coworking

The factors that lead to the appeal of coworking spaces and contributes to the ease by which the market adopts it, is a commonly debated topic within the literature (Allen and McCluskey, 1990; Bower and Christensen, 1995; Parrino, 2013; Liegl, 2014; Ross and Ressia, 2015; Waters-Lynch et al., 2016; Seo et al., 2017). Three significant factors that are frequently discussed within the literature; and that will be elaborated on for the purpose of this research are: access, affordability and flexibility. These factors are what promote the “celebrated coworking values” (Waters-Lynch et al., 2016:7) that enable commercial office environments to harness access in order to be community-oriented, sustainable and open. It is important to establish a firm grasp of the three factors and how it relates to disruption innovation in order to discuss the relevance of each within a South African context.

2.2.1 The value of access

The drive towards an economy of access, as well as the accessibility of goods and services, are challenges that have been indicated to play a vital role in promoting the shared economy

(Baum, 2017). The ability to overcome these particular challenges by bypassing ownership is becoming increasingly valuable for new businesses, specifically those founded by millennials (Green, 2014; Paterson and Preece, 2017).

Kelly suggests that the importance of possession has become inferior as "accessing is more important than ever" (The inevitable, 2017:109) and that the "switch from 'ownership that you purchase' to 'access that you subscribe to' overturns many conventions" (The inevitable, 2017:112). It is important to examine the value of access within the coworking environment in order to elaborate on the effect it may have on the demand for coworking spaces.

2.2.1.1 Access through the lens of the user

Consumers of the sharing economy are enabled, through sharing, to attain the services of an external party in real-time at the consumer's command and convenience. In a coworking context, monthly subscriptions to rentable space are made available and functions as a sharing framework by which users are both consumer and producer. Alvin Toffler, a futurist and businessman known for foreshadowing the rise of modern technologies and digital transformation, labelled this user-duality as the "prosumer" (The third wave, 1980:267). He elaborated on the prosumer in predicting that self-help technologies will be used in order to provide goods and services which reinforces the correlation between sharing and access, in light of the semi self-catering nature of coworking spaces and the technology dependent businesses of its users.

Kelly provides examples of the modern day public society's "incredible willingness to share" (2016:139) information that had previously been deemed too confidential by experts and professionals. Sharing platforms such as The Motley Fool and PatientsLikeMe provide access, with consent, to the personal finances and medical data of users who engage with the platform. He suggests that the verb, to 'share', "serves as the foundation for all higher levels of communal engagement" (2016:139) and that society's regular implementation of the sharing economy testifies to its relevance and importance going forward. Similarly, accessibility has been described as a "function of tech-driven information systems and marketplaces" (Baum, 2017:42).

There are potential limits to sharing however, in that the millennials who are currently attracted to sharing environments (Green, 2014; Baum, 2017; Paterson and Preece, 2017)

could prefer to seek more control over their environment once the responsibilities that come with age increase (Baum, 2017).

2.2.1.2 Access through the lens of the host

It can be argued that affordability, flexibility and the enriched nature of shared environments are all attainable through means of 'accessing'. 'Access' therefore plays a prominent role and will, for the purpose of this literature review, be considered in equal measure to the aforementioned factors associated with coworking. Coworking facilities provide users with a wide range of amenities among which the facilitation of community, provision of quality ICT and the empowerment of business services are the most notable to local users (Christie, 2016; Baum, 2017; Sagacite, 2017).

The ability to 'access' has fundamentally impacted on the demand and supply of real estate as "digitalisation and the sharing economy will also change the way space is provided and consumed" (Nenonen and Lindahl, 2016:314). Paul Keursten, co-founder of Workshop 17 (formerly known as OPEN), resonates with Nenonen and Lindahl in highlighting how "the spaces in which we work haven't adapted" (Christie, 2016:32) despite an exponential increase in the use of data, software and smart devices in everyday practices.

The provision of quality ICT has become a cornerstone to every coworking facility in the modern age. The ability to sit down, easily connect to high-speed internet and leave once your daily tasks have been accomplished reflects the most basic offering of coworking that is sought after by its users (Lynch et al., 2016; Sagacite, 2017). The internet is not the only example of ICT that adds value to coworking spaces however. Presentation screens, virtual headsets and interactive boards are three examples of connected devices that form part of the system that makes up IoT and may improve on a user's experience of a coworking space (The Instant Group, 2018).

Furthermore, if the goal of sharing is to maximise the abilities of the groups in collaboration (Kelly, 2016), then it is important that online connectivity is not the only means to bolster business. Educational classes, networking events and communal spaces create opportunities for cross collaboration between local businesses that can support each other. Users are thereby enabled, through 'access', to engage and collaborate more easily which,

in-turn, promotes the essence and strength of a local community (Green, 2014; Seo et al., 2017; Christie, 2016).

Finally, services such as device and user support; the provision of food and refreshments; and in-house marketing options empower businesses. Similarly, new technology that is based on IoT principles opens up new possibilities for management – such as workplace sensors which measure occupancy, sound, temperature and air quality to promote healthier work spaces (Ergosense, 2018).

These internal services provide business support to members and, in addition, gives access to a diverse combination of features that is a considerable value-add (Baum, 2017). A value proposition of this nature would otherwise have been unattainable due to barriers of entry, such as a restriction on capacity and expenses for example. Merrington also suggests that the quality of these value-adding features and services allow for users to distinguish between leading facilities and substandard competitors (Christie, 2016).

The ability of coworking spaces to adapt to modern demands is therefore a function of change management. Change management has been described as the process according to which organisations continuously adapts its structure and direction in order to meet the fluctuating demands of its target market (Moran and Brightman, 2001; Todnem By, 2005).

The CEO of the Cape Innovation and Technology Initiative (CiTi), Ian Merrington, argues that the mere supply of coworking spaces is secondary to the management thereof (Christie, 2016). Coworking management is therefore inferred to be of critical importance, “from both hosts’ and users’ perspectives” (Seo et al., 2017:8), in ensuring that the quality of community, infrastructure and business services are prioritised and maintained at high standards (Seo et al., 2017).

2.2.2 The value of affordability

Both user and host are directly affected by the perception of value assigned to coworking, in that coworking spaces are likened to the “serviced office industry, where customers pay a flexible, all inclusive (usually) monthly fee” (Waters-Lynch et al., 2016:9) that provides access to the combination of various features facilitated by the coworking space.

Affordability can be argued to be a product of the sharing economy as the sharing principle directly affects expenses to both user and host. High capital costs, illiquidity and non-portability of assets and the onerous process of acquiring property is noted to be inefficient in the modern market for traditional commercial office space (Baum, 2017). Instead, users are able to enjoy a number of ownership benefits without the need for expensive capital purchase or upkeep by subscribing to coworking spaces.

2.2.2.1 Affordability through the lens of a user

The cost of 'access' has been noted by users to be of importance (Sagacite, 2017; Seo et al., 2017), attributing value to the ability to shift from 'purchasing' ownership at high costs towards more affordable 'subscription-based' access. In Coworking: A transdisciplinary overview, this shift is attributed to the inherent model of coworking where "the individual is at the centre of cost-based collaboration" (Waters-Lynch et al., 2016:15) and costs that are allocated to transactions and operations are subsequently reduced.

Merrington has noted that developing tools, in order to optimise either transaction or operation in-house, is incredibly complex and costly (Christie, 2016; Ross et al., 2015), especially if the company is aiming to limit its expenditure. Start-ups and smaller teams that attempt to unlock disruptive innovation generally "lack the required capital, are not credit-quality rated, and need scalable space" (Green, 2014:52). It is for this reason that business incubators and accelerator programmes support businesses, as discussed in Section 2.1.2, and are associated with coworking initiatives such as Think Rise, Bandwith Barn and OPEN (Christie, 2016; Sagacite, 2017). Affordability is thereby a function, in more ways than one, that contributes to the perceived value users may find appealing in coworking spaces (Allen and Mcluskey, 1990). The opportunity to distribute costs among a larger group of members in order to access amenities, instead of being carried by a single individual is an essential aid (Allen and Mcluskey, 1990; Baum, 2017).

Users are disadvantaged however, in that they may not gain all of the benefits of traditional ownership, such as rights of modification, long-term access, or an increase in asset value. It is therefore necessary for users to carefully consider the nature of the value that is assigned to affordability within the context of coworking.

2.2.2.2 Affordability through the lens of a host

Typical business models for coworking spaces include costs related to the operation of the facility, including renovations and building maintenance, in addition to employing relevant members of staff (Paterson and Preece, 2017). In contrast, revenue is primarily generated through membership fees, while additional income is sourced through bookings for meetings and events; and food and beverage sales (Paterson and Preece, 2017). The ability of coworking spaces to rapidly acquire and maintain more members is therefore the main focus of the business model (Paterson and Preece, 2017). As aforementioned, accelerators and incubators have limited capacity for membership intake, presumably due to a limitation on resources and the target for higher turnover rates as suggested by Cashman (2012). It would be of interest that the literature expands more on how numerous coworking spaces have placed an emphasis on membership exclusivity, in contrast to increasing the quantity of memberships, as suggested by Paterson and Preece (2017).

The connection between coworking spaces and 'affordability' through 'access' to benefactors has led some researchers to conclude that coworking can be likened to accelerators (Messina, 2007). At a conference discussing "scientific, policy and strategic issues concerning the spatial dimension of innovation activities" (European Commission, 2014), the statement was made that "coworking spaces are regarded as serendipity accelerators" (Moriset, 2014:1) due to its proclivity for beneficial meetings and social engagement. These meetings serve as one example of the complex factors that require a user-centric supply of scalable in-house space - a benefit for which users previously required substantial capital. Scalable space has also been noted to be a key to piquing the interest of disruptors (Baum, 2017).

The demand for scalable space has become a trend that has left commercial real estate "susceptible to obsolescence" (Green, 2014:52) when neglected. In response, corporations have opted to decrease operational costs by downsizing the requirement for occupied space (Green, 2014) which in turn reduced the revenue secured by landlords. As a result, an increasing amount of space has therefore been supplied to meet the demand for integrated work spaces (Waters-Lynch et al., 2016; Seo et al., 2017; Green, 2014; Castells, 2011; Kostakis and Bauwens, 2014). Corporate entities have noted that flexible workspaces benefit business by reducing property costs and increasing productivity in the office (The Instant Group, 2018).

The combination of ‘access’ to scalable space and the implementation of business incubators provide hosts with an opportunity to derive additional monetary-benefit. Governments can, for example, incentivise coworking developments with tax exemptions towards promoting micro clusters through coworking, which in turn “bolster economic development” (Ross et al., 2015:53). These benefits enable hosts to further reduce subscription fees and improve the user’s entry to market.

2.2.3 The value of flexibility

A study on the impact of flexible workspace found that the ability to offer flexibility to members is a prominent driver to increase asset value, in addition to being the second most popular reason for landlords to establish coworking spaces (The Instant Group, 2018). Flexibility is a complex factor however, in that the literature establishes a clear distinction between physical flexibility and abstract flexibility (Ross and Ressia, 2015; Waters-Lynch et al., 2016; Ehrenkrantz, 1999; Monahan, 2002).

For the purpose of this literature review the views of Torin Monahan, on the difference between physical and abstract flexibility, will be utilised in order to provide a clear understanding of each. In an article titled, *Flexible space & built pedagogy: emerging IT embodiments*, Monahan defines physical flexibility to be attributed to the “adjustability of a space to the practises of individuals, such as meeting the special sensory and/or mobility needs of students” (2002:1). Mobile and otherwise changeable furniture or spatial dividers are examples of elements that allow for physical flexibility.

In contrast, abstract flexibility is defined as the “ability of built space to accommodate for unforeseeable changes such as demographic shifts, community needs, or policy mandates” (Monahan, 2002:1).

Findings pertaining to the importance of physical flexibility is inconsistent when reviewing the literature. While the majority of authors note that a distinction in architectural and interior design is evident, it has been linked to the “early coworking movement’s attempts to contrast their practices” (Waters-Lynch et al., 2016:10) with that of traditional commercial environments. In addition, supporting evidence has suggested that the majority of users consider factors such as access to the internet, an engaging community and the affordability

of membership to be of greater importance than architectural design (Green, 2014; Christie, 2016; Seo et al., 2016).

In light of the aforementioned evidence abstract flexibility will thereby enjoy emphasis for the purpose of this literature review and will be explored with references to time, location, working environment and cost.

2.2.3.1 Flexibility through the lens of a user

In *The Inevitable*, Kelly explains a critical shift in our working environment from the industrial age to the "third age of computation" (2016:63). The first computers imitated the industrial age in simulating a digital office with desktops, files and folders that was succeeded by the second digital age during which websites and hyperlinks replaced locally hosted files by means of an internet browser. Finally, we have progressed to the third age of computation where live streams and newsfeeds determine how we manage both our private lives and our commercial offices (Kelly, 2016).

It can be argued that we are moving towards being more online, connected virtually and independent of fixed locations – operating in flux. The literature emphasises how factors like shared ownership and short-term use are not only in relation, but notably impacts on the demand for commercial office space (Kelly, 2016; Baum, 2017). The user demand for commercial space is thereby suggested to progressively gravitate towards a flexible model as a result. Similarly, increasing evidence is being found in support of a user demand for flexibility with regards to time and location (Alizadeh, 2012; Czamanski and Broitman, 2016; Seo et al., 2017). It is therefore of importance that the flexibility, enabled by coworking, allows for the limitations of incumbent practises - pertaining to physical location or time zones - to be overcome (Czamanski and Broitman, 2016).

The literature also comments on the fact that interaction and diversity of coworkers and working conditions are of primary benefit to users (Christie, 2016; Sagacite, 2017). These benefits have also been indicated to be major drivers for change by 44% of all respondents in the World Economic Forum's The future of jobs report (2015).

Finally, "convertibility, scalability, and modifiability" (Monahan, 2002:2) are critical to future-proofing coworking spaces towards avoiding functional obsolescence. The ability to

“improve, personalise, or appropriate” (Kelly, 2016:125) these shared spaces may become a desirable function to further enhance the flexibility of coworking for users. The notion of the prosumer would thereby be strengthened in further empowering users through the incorporation of their input.

2.2.3.2 Flexibility through the lens of a host

The implementation of abstract flexibility requires of coworking spaces to have factored in, since the initial stages of planning, the necessary measures by which to remain adaptable. The evident impact of trends, disruptive innovation and the exponential rate at which technology is changing renders the time-sensitive nature of relevance to be increasingly important. It is for this reason that abstract flexibility is suggested to rely majorly on the capacity and effectiveness of management.

Trends, such as scalable commercial space for example, are noted by the literature to be of concern as hosts can easily stagnate in respect to management (Bouwer and Christiansen, 1995; Danneels, 2006; Latzner, 2009). Hosts have been indicated to efficiently facilitate the function of “serving the rapidly growing needs of their current customers” (Bouwer and Christiansen, 1995:47), but tend to hold fast to guidelines and principles which ultimately become outdated in an ever-progressing environment. The same flexibility desired by users, should therefore be valued by hosts in order to create a financially sound model that further promotes the benefit of affordability.

Abstract flexibility can also pertain to affordability in the form of flexible membership subscriptions. The literature indicates that, due to the inconsistent nature of memberships, traditional investors frequently expresses concern over uncertainty with regards to the financial sustainability of the coworking model (Bouwer and Christiansen, 1995; Christie, 2016; Seo et al., 2017). These uncertainties could be argued as challenging considerations for hosts in maintaining investor trust.

According to the literature, the fundamental principle of disruption depreciates the value of traditionally limited or otherwise inflexible spaces, in that it is an unforeseeable shift for which financial markets are not prepared (Christiansen, 1995; Latzner, 2009). Any uncertainty regarding the degree to which commercial spaces are flexible could thereby be viewed as an indicator of potential future inadequacy, which in light of the complexities faced by hosts

to premeditatively counter obsolescence, is critical to investors. Paul Keursten has responded to the concern over inflexibility and uncertainty by stating that investors who share this sentiment “fails to attach value to communities” (Christie, 2017:33).

A new demand that stems from overcoming the limitation of location and time zone is the establishment of a “seamless national platform” (Green, 2014:54). Such a platform can enable users to access various coworking spaces within a country under a single subscription membership. This idea provided an opportunity for hosts to expand their platforms internationally – which conforms to the principles of coworking and allows members to flexibly work from designated coworking spaces in various cities across the globe. WeWork and Regus are two companies that have already acted on this opportunity and each implemented their respective global membership programme.

In light of the literature it is evident that flexibility is sought after by users who are reliant on ICT and the IoT; and whose aim it is to offer disruptive innovation. This suggests that abstract flexibility is of paramount concern to the hosts of coworking spaces. The careful consideration of user demands relating to technological trends and advancement thereby enable hosts to prevent functional obsolescence.

2.3 Coworking in the South African context

It is important to note that there is currently a lack of available literature that relates to coworking spaces in the South African economy. In order to contextualise the topic, literature that is indirectly relevant will be reviewed in combination with the limited contextualised information that is available. Local views on the industry of technology and the relevance of organisations that promote the sharing economy will therefore be included. In doing so, a parallel can be drawn by which to deduce any thematic correlations. Finally, findings of other relevant studies completed in the Western Cape will also be reviewed to determine whether disruptive innovation and access to coworking spaces had an impact on the local emergence of coworking establishments.

2.3.1 The promotion of technology in South-Africa through the sharing economy

Business incubators are noted by the literature to be increasing relevant to third world countries such as South Africa (ILO, 2000; Ndabeni, 2008; Lose and Tengeh, 2015) and

sets a notable precedent that promotes the sharing economy. Developing countries are all the more recognising that the support provided by these organisations is instrumental to the sustainability of new businesses (Lose and Tengeh, 2015). Significantly, incubation organisations in South Africa are said to be focused on technological innovation and business sustainability (Lose and Tengeh, 2015; (Dubihlela and Van Schaikwyk, 2014).

A paper titled Digital Development and Disruption in South Africa - balancing growth and equity in National ICT Policies, surmises that South Africa is in a superior position to any other country with respects to taking "advantage of growth opportunities in information technology industries" (Benner, 2003:2). Furthermore, it is stated that the country is considered to be amongst the top twenty-five global locations due to the "degree of connectivity" (Benner, 2003:8) that is enabled through its competitive internet infrastructure. In considering the views on the demand for technological innovation in South Africa, it is of no surprise that the industry of technology is at the centre of organisations that aim to create for sustainable business.

The first South African incubator that is said to have been successful is Godisa, an organisation of twelve incubators that was formed through the collective efforts of the departments of Science and Technology, and of Trade and Industry (Buys and Mbewana, 2007). The Innovation Hub serves as another example of a business incubator that prioritises innovative high-technology clusters, entrepreneurship and start-ups that are inclined to disrupt the South African economy (Business Referral and Information Network, 2004; Ndabeni, 2008; Dubihlela and Van Schaikwyk, 2014).

In considering disruption in particular, Linda Erasmus, CEO of Fine & County Sub-Saharan Africa believes that the South African property market is shifting to become "more customer-oriented and less agent-oriented" (Erasmus, 2019:33) and that buyer behaviour will adapt due to influence of younger individuals on the market (Erasmus, 2019).

This younger South African workforce could therefore be argued to be in a position to seek out affordable and flexible access, by which they can network, scale and service the market (Paterson and Preece, 2017). Coworking could be perceived as a means by which to achieve the self-employed user's true goal, which is overcoming barriers that prohibit them from entering the market.

The literature accentuates the high regard in which disruptive innovation through technology is held by business incubators, in addition to its alignment with the principles of the sharing economy. Business incubators draw a parallel between the value of organisation-based support and the value of coworking facilities. The goals of incubators can therefore be likened to that of coworking, albeit in the key factors that enable these offerings to meet economic demands.

2.3.2 Existing views on coworking in South Africa

South Africa has been identified to be among the “most active coworking nations in Africa” (Sagacite, 2017:10), while Cape Town is considered to be the “undisputed African capital of coworking” (Christie, 2016:35). Tim Harris, CEO of the Western Cape Investment and Trade and Promotion Agency (WESGRO), has stated that “the proliferation of coworking spaces is aligned to the fact that Cape Town is also Africa’s leading city for start-ups” (Christie, 2016:35).

The Greater Tygerberg Partnership, a non-profit organisation focusing on sustainable urban environments (Sagacite, 2017), analysed the potential for coworking in the Western Cape in association with Sagacite (Sagacite, 2017), a previously existing boutique management consultancy. Their research focused on the Northern suburbs of Cape Town, but provided notable information on the subject that builds on the case for the surrounding areas.

An interview with the vice chairperson of Silicon Cape revealed that an increase of 875% of coworking spaces was recorded in Cape Town over the course of four years (Sagacite, 2017). The report indicated that there were four recorded spaces in Cape Town in 2012, which grew to a number of ten by 2014. By the year 2016 there were thirty-five established spaces on record (Sagacite, 2017). Interestingly, the increase in self-employment under the youth - as discussed in section 2.1.3 - was recorded over the exact time period.

A survey, to which 111 individuals responded, revealed that 75% of respondents believed that their region would benefit from coworking spaces (Sagacite, 2017). Interestingly, more than 66% of the respondents were thirty-five years of age or older – indicating that millennials aren’t the only applicable market for coworking (Sagacite, 2017).

Access to high-speed internet lines was indicated by 84% of the respondents to be the most important requirement, whereas networking opportunities and designed environments were the second most important requirements - equally supported by 53% of respondents (Sagacite, 2017).

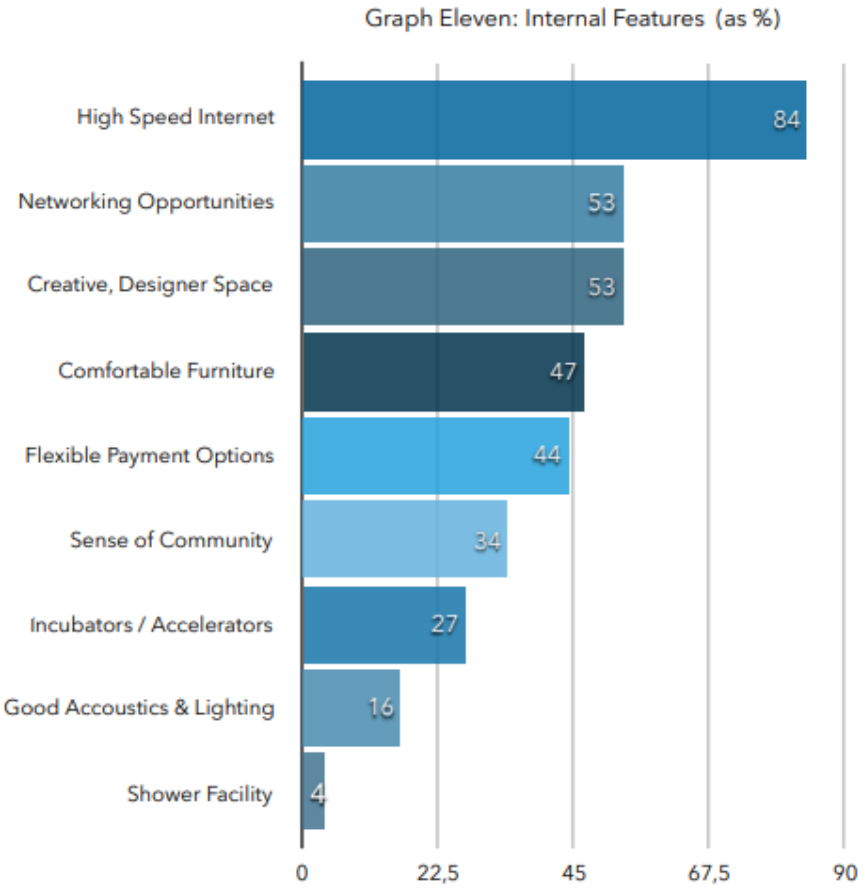


Figure 3: The demand for internal features in coworking spaces in the Western Cape (Sagacite, 2017:23)

2.4 Literature review in summary

Moriset has skilfully described coworking spaces to be the "outcome of the frontiers and hybridization processes between technological, economic and social categories" (2014:1).

Socio-economic shifts, influenced by the emergence of the sharing economy and the effects of digitisation have altered the demands for functional space by entrepreneurs and businesses alike. The market is increasingly acknowledging the value of organisations that incorporate the principles of the sharing economy, such as business incubators. In-turn, the applicability of the coworking model is affirmed in the similar means by which it incorporates these principles.

Access to affordability, flexibility and a supporting business network is indicated by the literature to be key factors that are critical to both users and hosts in considering demand and supply. Users seek to benefit from environments that provide access to the market through online connectivity, a professional community and flexible lease agreements. In-turn, hosts prioritise the management of their spaces to ensure that the environment is sufficiently enriched to support innovative entrepreneurial endeavours. Environments that integrate infrastructure at the forefront of technology and actively encourages the facilitation of opportunities for networking are thereby considered to have an advantage over traditional commercial space with fixed long-term agreements.

South Africa has been identified as an emerging economy with a significant capacity for both disruptive innovation and coworking. The emphasis on innovation, through technology, throughout the literature indicates that it plays a pivotal role in being sought after by the industries that frequent coworking spaces, and especially in shaping the South African economy.

Chapter 3: Methodology

The approach towards answering the research questions in Section 1.4 is discussed in this chapter. The significance of the research questions is first elaborated on in Section 3.1 in order to establish the setting off point for constructing the research methodology. Section 3.2 discusses the research design that was employed in order to provide clarity to research methods and the measures for theoretical constructs. Data sampling, data collection and data interpretation is discussed in Section 3.3. Finally, the limitations that may impede on the methodology concludes this chapter in Section 3.4.

3.1 Significance of the research questions

The aim of this research, as stated in Section 1.5, was to investigate the relationship between the development of coworking spaces and the emerging market of disruptive innovation in Cape Town. In addition, the research attempted to understand the views of the founders of coworking spaces, as hosts, in order to develop socially constructed theory on the relationship between coworking spaces and the disruptive innovation market. To accomplish these aims the research questions were determined to be:

A. What factors of the coworking typology are beneficial to users of functional space within the emerging disruptive technology market?
B. What is the connection between coworking spaces and the market for innovative disruption?

The research intended to interpret the views of the founders in order to determine whether any correlations were evident. The research was grounded in obtaining a better understanding of the social reality of a new model for commercial office space and its relevance to innovative disruption. Hence, a constructivist ontology was assumed whereby the perception of reality is formed by social context and the respective experiences of various individuals (Guba and Lincoln, 1994; Bhattacherjee, 2012). An interpretivist paradigm was employed as the research aimed to investigate and understand phenomenon, based on empirical observations of the primary evidence (Bhattacherjee, 2012).

3.2 The research methodology

The interpretivist paradigm described in Section 3.1 suggests that a qualitative approach should be implemented as qualitative research comprises investigating and explaining of a phenomenon that is based on human perspective (Hoepfl, 1997; Denzin and Lincoln, 2000). Case studies, grounded theory, ethnography and action research are examples, amongst others, of interpretivist methods (Denzin and Lincoln, 2000; Bhattacherjee, 2012). The design of this research followed the explorative descriptive process that involves both grounded theory and inductive argument.

Grounded theory has proved to be popular among research in facilitating the exploration of phenomena and for allowing a wider range of data to build on, in comparison to other qualitative techniques (Smit and Bryant, 2000; Goulding, 2002; Sternquist and Chen, 2006; Tolhurst, 2012; Kovacich and Amankwaa, 2017). Grounded theory is an inductive technique whereby theories, based on qualitative data about a social phenomenon, are constructed in order to determine the consequences and their related circumstances (Straus and Corbin, 1994; Locke, 2001; Charmaz, 2007; Bhattacherjee, 2012). The data is generally collected through various means such as interviews, recordings, documents, observations, and even statistics, for example (Hoepfl, 1997; Goulding, 2002; Sternquist and Chen, 2006). Inductive analysis is then employed to interpret the data by means of a coding process to extrapolate significant themes or categories (Hoepfl, 1997; Bhattacherjee, 2012). Finally, a grounded theory is established based on either a substantive theory, that is based on a specific context; or a general formal theory, that is explored under numerous circumstances (Strauss and Corbin, 1990).

The analysis and collection of data can occur simultaneously while uncovering and grouping central categories associated with the social phenomenon (Glaser and Strauss, 1967). The iterative grouping of these categories - likened to the development of theoretical constructs - allows for inter-linking associations to be observed, in-turn bringing more clarity to inform refinement. (Glaser and Strauss, 1967; Strauss and Corbin, 1994, Bhattacherjee, 2012).

The coding process initiates with open coding, whereby patterns among initial codes are identified and tested through constant comparison in order to uncover any emerging categories, also known as emergent themes (Glaser, 1978; Holton, 2007). The data is subsequently delimited to the aforementioned categories, once it has been identified and

proved to be relevant to the area of study (Glaser and Holton, 2004). Selective coding is then used to identify and sufficiently elaborate on a core category and both coding and data collection terminates once it has been theoretically saturated (Holton, 2007; Morse 2010). The core category represents the central phenomenon that integrates the related categories and concludes the process of theory development (Glaser and Strauss, 1967).

In order to identify the core category and distinguish between the emergent categories, there are six criteria according to Strauss (1987) that substantiates the validity of the core category. The core category must therefore be:

- Essential to the emergent themes;
- Related to other categories;
- Prevalent in the data;
- Indicative of a general theory;
- Emergent from analysis and able to develop the underpinning theory
- Subject to maximum variation during analysis with regards to properties, strategies, consequences and dimensions.

This process is required to arrive at theoretical saturation in order to consider the collected data to be adequate for the purposes of the research (Glaser, 1978; Holton, 2007; Morse, 2010). It should be evident that no new categories are emerging during the continuation of the coding process in order to satisfy for saturation (Glaser, 1978).

3.3 Research methods and data collection techniques

3.3.1 Data sampling strategy

Expert sampling was employed in order to ensure that credible and information-rich samples were purposefully selected (Patton, 1990; Bhattacherjee, 2012). The founders of all existing coworking spaces were identified as the primary population for this study due to their practical experience as hosts. For the purpose of this research, the primary sample frame consisted of founders that have established coworking spaces in Cape Town, South Africa; and who were willing to participate in the study. The primary sample size was only established at the point when theoretical saturation was reached. Data collection was consequently terminated.

In order to consider the totality of each context pertaining to the respective founders, a secondary population was identified through analysing the documentary evidence. This population comprised of companies that have obtained membership subscriptions to coworking spaces and thereby take on the role of users. The secondary sample frame consisted of the available lists of recorded memberships, as captured by coworking spaces in Cape Town, South Africa. The sample size was determined by the availability of such lists and whether permission to access it was granted by the respective coworking spaces. The documentary evidence was quantitative in nature and purely considered as data to either support or contradict the argument.

3.3.2 Data collection

The survey procedure of collection, specifically interviews, was used for the primary sample due to the exploratory nature of the research, and the fact that individual people were the unit of analysis (Bhattacherjee, 2012). Survey procedures can be argued to be limited in light of the probability that biases, such as non-response bias, may occur.

Semi-structured interviews is a common technique for qualitative data collection that is used in grounded theory (Tolhurst, 2012), and thereby a fitting research instrument by which to collect the primary data. All interviews have been personally conducted and digitally recorded by the author. The interviews were then transcribed verbatim by the author, using the digitally recorded audio in order to ensure that recollection bias does not impede on the quality of the data. All interviews followed the same structure in covering three categories, namely: (i) Demand and Supply (ii) Disruptive Innovation and (iii) Local Sentiment (see appendix A: interview questionnaire).

Literature on coworking spaces frequently references the features of coworking spaces that intend to meet market demand for functional office spaces (Kwiatkowsku and Buczynskuli, 2011; Green, 2014; Ross and Ressia, 2015; Wong, 2015; Leclercq-Vadelannoitte and Isaac, 2016; Baum, 2017; Seo et al., 2017), but there is a limitation on the availability of research on coworking spaces that is based on the South African market. The interview design was therefore broadly informed by the focus of the literature and aimed to explore the views held by the founders of coworking spaces in Cape Town to contextualise the data. Interviewee insights on demand and supply could therefore indicate which of the demands, as indicated in the literature, are of local relevance and whether the market is saturated. The section on

disruptive innovation could reveal whether the interviewees were aware of any influence that either coworking or technology such as IoT, ICT or disruptive innovation has on each other, if any.

The order of the first two categories was intended to allow the interviewees time to consider both the demand and supply in South Africa, in addition to the direct relevance of technology to coworking spaces. The interviewees' consideration of both former categories could therefore inform the discussion on investor appetite and development potential in the final category on local sentiment.

The semi-structured nature of the interviews allowed for interviewees to elaborate on their answers which in-turn enabled the emergence of relevant themes and categories. Transcription occurred after each interview and data collection was terminated when new codes and/or themes were no longer identified by way of interviewing the founders. A randomly selected sample interview transcript can be found in Appendix B.

Grounded theory prefers the use of multiple data collection techniques in order to gain a deeper understanding, as the tendency to only use a singular technique has been described to be problematic (Gibson, 2005). The collection of documentary evidence in the form of membership databases has therefore served as a secondary and quantifiable source of data in support of the argument.

The membership databases could serve as a demographic that indicates the duration for which each subscription remained active. In-addition to gaining insight pertaining to the industries to which members belong to, the data indicated which industries were considered to include key users of coworking spaces. Databases required the following information to be considered as data of sufficient quality:

- A list of all coworking memberships since establishment
- The start date for each membership
- The termination date for each membership that is no longer active
- Sufficient company information to determine the industry vertical of members

The duration for which ongoing memberships have been active were determined by calculating the amount of time that has passed since the subscription was first purchased.

The start and termination dates were used to determine the duration for which previously terminated subscriptions had remained active.

3.3.3 Ethics clearance

This research acquired the consent of interviewees in terms of confidentiality and the use of the results in the research report. Confidentiality guarantees the respondents that their responses will only be accessible to the researcher.

The ethics protocols require of the interviewer to provide an informed consent form to interviewees. It was undertaken to ensure the confidentiality and anonymity of all interviewees in order to prevent the direct correlation of the data with any specific coworking spaces. Research ethics was obtained from the Faculty of Engineering and the Built Environment Research Ethics Committee. The signed ethics clearance form is provided in Appendix C. The template to the notice of confidentiality form is found in Appendix D.

3.3.4 Data interpretation

The grounded theory method necessitates the prevention of any pre-existing biases from influencing the data analysis in order to allow the emergence of categories to determine the theory (Kelle, 2010; Bhattacherjee, 2012). Data collection had continued while data analysis was initiated in order to ensure that no relevant lines of inquiry were foregone during the exploration phase (Charmaz, 2007). Theoretical sensitivity was employed to both accurately identify relevant data and reflect on the resultant theoretical insights that were formulated (Glaser and Holton, 2007; Kelle, 2010).

The transcribed interviews were imported to NVivo, a computer assisted qualitative data analysis software (CAQDAS), in order to initiate the coding process as outlined in Section 3.2. NVivo was only used as a means to digitally demarcate and categorise relevant information in order to enhance both the coding process and theoretical sensitivity.

The transcribed interviews were subsequently analysed sentence-by-sentence, through constant comparison and coded according to its content during the open coding process (Strauss, 1987; Charmaz, 2006; Bhattacherjee, 2012). The search for processes –

“participant actions that have antecedent, causes, consequences and a sense of temporality” (Saldaña, 2013:103) - is a major component to open coding. Any relationships between emerging categories were then identified, while sub-categories were aligned with the relevant categories during axial coding (Strauss and Corbin 1990; Saldaña, 2013). Finally, a core category was determined by linking the categories together through selective coding (Strauss, 1987; Miles and Huberman, 1994; Bhattacherjee, 2012).

The supplementary quantitative data was analysed through the appropriate charts in order to indicate any significant findings. The frequency and duration for which memberships remained active indicate what industries are considered to be more inclined to make use of coworking spaces. A distinction was made between companies that provide a technological solution as their business offering and those that simply utilise technology, in order to promote and coordinate their services. In establishing the percentage of memberships that are attributed to technological innovation, compared to those memberships that are not, an argument could be made as to the relevance of market demand and supply. The additional information was thereby used to triangulate the data.

3.4 Validity and reliability of the research

Researchers believe reliability and validity to be integral parts when verifying the quality of a study and its results (Miles and Huberman, 1994; Joppe, 2000; Golafshani, 2003). Reliability is described as the degree to which the results of a study is considered to be an accurate and consistent representation of the entire population being studied (Joppe, 2000). The research instrument is found to be reliable if these aforementioned results can be reproduced under a similar methodology (Golafshani, 2003).

Types of reliability include test-retest reliability, interrater reliability and internal consistency reliability (Schuringa, Spreen and Bogaerts, 2014; Heale and Twycross, 2015). Test-retest reliability can be achieved by ensuring that questions are similarly understood by interviewees and that external factors that could influence their answers over time are minimised. In order to achieve interrater reliability, the possibility of interviewee responses being subjective must be prevented. Finally, internal consistency is dependent on interviewee responses reflecting the same sentiment, in other words, an interviewee should not contradict themselves while completing the interview.

Whether or not the study appropriately and truthfully measures what it was supposed to measure is known as validity (Joppe, 2000). In addition, there are two types of validity that each explore a different aspect of validity namely, internal validity and external validity. Internal validity describes the degree of authenticity inherent to the relationship between the focus areas and whether it remains unaffected by external variables (Miles and Huberman, 1994). External validity refers to the degree to which the results can be generalised and applied in different circumstances (Miles and Huberman, 1994). Variations in the understanding of validity has led researchers to adopt terms such as trustworthiness, rigour and quality in order to provide more clarity to the concept (Lincoln and Guba, 1985; Stenbacka, 2001; Davies and Dodd, 2002).

Types of validity include construct validity, content validity, face validity and criterion validity (Oluwatayo, 2012). Construct validity measures if the research instrument, in actuality, assesses the data that the study intends to assess. Content validity is dependent on the degree to which the interview questions considers the totality of the data that the study intends to collect. Face validity considers the suitability of the research instrument content on a more subjective level than the content validity. Finally, criterion validity tests how closely the results of a study corresponds with that of a similar study.

The discussion on reliability and validity as it relates to this study will be provided in Chapter 5.

3.5 Conclusion to chapter 3

Chapter 3 has provided an overview of the research methodology employed in this research and the research methods used. The next chapter documents the presentation of the data collected.

Chapter 4: Research Results – Emergent Themes

4.1 Introduction

The results obtained during the data collection process will be presented and discussed in this chapter, which will be structured according to the themes that emerged through the use of the grounded theory methodology.

These aforementioned themes were based on the identification of relationships between emerging categories, as coded from the interview transcripts in NVivo, and will provide the basis from which the findings will be discussed in Chapter 5. Verbatim quotes will be sourced from the interview transcripts and used where appropriate to support the development of themes as depicted by the theme structure in Appendix F.

4.2 Emergent Theme 1: Affordability

The high rental cost of office space in Cape Town, in conjunction with South Africa's unpredictable economic state, proves to be a significant financial challenge for local businesses.

Affordability can thereby be found to reflect in the third-generation codes of 'cost to rent' and 'supply and demand' as depicted in Appendix F.

4.2.1 Cost of rent

The 'affordability' of the 'cost of rent' is reflected in the 'cost of development', 'complexity of development' and 'cost of maintenance'. The aforementioned financial challenges have been suggested to force business owners to consider the viability of property ownership or fixed lease agreements. Tenants who either own or lease property on a fixed basis are exposed to the risk of low vacancy rates, which is considered to be unfeasible:

> **CSF4**: *Inner city property, CBD, business hubs - people can't afford to have downtime with space.*

The lack of sufficient capital for acquiring commercial office space in Cape Town thereby proves to be a challenge for most start-up businesses, especially those that allocate larger portions of their budget to research and development. This reflects the significance of the inability to pay for high capital assets and amenities as discussed by Baum (2017) and Seo et al. (2017) in section 2.2.2. Development and maintenance costs are difficult to justify for smaller companies or project teams who do not have specific spatial requirements for a large workforce or physical assets such as industrial machinery for example. It is therefore unfeasible for these companies to build or own property in Cape Town, especially if their basic needs are access to a good internet connection and a desk to work at:

> **CSF5:** *There's the affordability of owning vs renting at a rate per square that is expensive in Cape Town. Infrastructure in Cape Town is ridiculously expensive even in comparison with London.*

Moreover, companies require the support of modern-day infrastructure which surpasses that of a fibre line and a basic work space:

> **CSF6:** *It started out and people were fine with a desk and plastic chairs. But ergonomics, acoustics, HVAC – so the biggest complaint that we get is not internet, it is HVAC. The HVAC is not working...HVAC and then, internet. Those are immediate because they directly touch on comfort and being able to do what you need to do.*

Limitations on the ability of businesses to independently recreate an environment of equal quality to traditional commercial space with previously installed infrastructure remain to be a reality for many. Moreover, older buildings might not have adequate infrastructure to meet the requirements of modern technological systems. The complex nature of certain installations can thereby be too costly for local companies:

> **CSF3:** *It's difficult to build physical infrastructure to meet that demand.*
> **CSF6:** *Buildings need to be designed very differently in terms of tech. In terms of access, tech-infrastructure.*

As a result, an uptick in the local market supply of coworking spaces has provided new business owners with increasing alternatives to property ownership and traditionally fixed lease agreements:

> **CSF2:** *The financial benefit of coworking for small businesses… If you run a small office with cleaning once a week, internet and coffee for your employees it is usually more efficient to use coworking spaces up to 4 to 8 employees. That for a small company is a big deal.*

Companies would find it more cost effective and less cumbersome to utilise coworking spaces for these reasons.

4.2.2 Business amenities

The business amenities were split into two nodes as a result of the distinct nature in which specific value-adding amenities were raised by interviewees. The two nodes were therefore respectively coded as the ‘basic offering’ and ‘additional offering’.

Value-adding amenities that were grouped under the ‘basic offering’ node included a ‘quality internet connection’, having ‘sufficient space’ and ‘coffee’. The interviewees especially highlighted the importance of access to an internet connection and coffee despite the trivial nature of the relationship between them:

> **CSF1:** *Definitely the internet connection - that’s the first one.*
> **CSF2:** *If you run a small office with cleaning once a week, internet and coffee for your employees - it is usually more efficient to use coworking spaces.*
> **CSF3:** *Most people can get good internet connections at home, but hardcore developers are looking for a fibre line, so that is important, they want to know everything about our fibre. At home, they don’t want to have to get fibre. Coffee. Good coffee... Coffee was a bit tongue in cheek, it really is important in the Cape Town environment.*
> **CSF5:** *Well they all have to supply a demand like internet, because it’s become like electricity.*
> **CSF6:** *Basic stuff that used to be their reasons for coming in which is internet, coffee and basically those are the two things that it started from.*
> **CSF7:** *Your business is based on that - if you can’t give someone a good chair to sit on, a cool office and a steady internet connection you will go out of business in one month.*

However, the demands of companies had started to shift beyond the provision of internet and coffee. In response, coworking spaces started to aim at offering an additional variety of amenities in order to gain a competitive advantage. This enabled companies to differentiate between coworking spaces according to the combination of amenities and opportunities that were offered by each:

> **CSF1:** *I think a coworking space is like a pair of jeans, you’ve got to find one that matches you... I’ve heard from a lot of people who end up coming here - how other spaces don’t meet demands.*
> **CSF2:** *There are a couple of spaces that, if they see the demand shifting they try to meet it with supply... Our space has changed two or three times since we started in terms of the types of questions people have been asking.*

Smaller businesses could thereby seek out spaces that meet their demands, which could include an advantageous location, parking bays, security measures or the ability to print, for example.

These amenities enabled businesses to save on costs that would otherwise be incurred in less convenient alternatives:

> **CSF4:** *Allowing companies to reinvest their cash flow into their business, as supposed to buying a printer for a lump sum. It's all part of the sharing economy and shared knowledge - it works along with the same principle.*
> **CSF5:** *I can now join a decent coworking space - you can get it for 2000 a month or whatever the membership costs per month and I get all of those things including tech support and printing... Geographic locations of coworking spaces are becoming more and more important - tying in with the congestion that we all experience on a daily basis in this town, having a space in close proximity - and then that leads to an economic discussion… Infrastructurally the city cannot cope, it has no public transport to speak of, certainly on a reliability or safety level and the cost is a massive barrier to entry.*
> **CSF6:** *Access to parking, it is South Africa.*
> **CSF7:** *Printing, cleaning, security - anything that a traditional office would have to hire someone to do.*

In other instances, companies saw the potential of gaining business through other advantages such as improved clientele in their area and having access to amenities that are perceived to be sought-after and trendy:

> **CSF1:** *Coworking spaces still focus on the city centre because they believe it to be trendy with a lot of design capital.*
> **CSF5:** *The CBD's are always the first to experience the upgrades, but the suburbs rolls out over a later spell, so there's a massive social component.*

Other examples of competitive advantages include the attempts of coworking spaces to standardise the integration of uncommon and less accessible amenities such as IoT enabled workspaces:

> **CSF4:** *When it comes to tech based, let's say supporting features, we spent a lot of time and energy on biometric access, we host our own hard fibre line in our server room, we have IT support on site. Fully equipped, fully services, fully staffed.*
> **INTERVIEWER:** *(overlapping) So it's not auxiliary function, it's very much a primary focus?*
> **CSF4:** *Yes.*
> **CSF7:** *We've invested significant funds into making sure all of our services, facilities, networks and events and offerings are provided through a single point of contact on your device.*

The integration and availability of uncommon amenities, such as IoT devices, will be discussed in more depth in section 4.4.4.2. It is worth mentioning that uncommon amenities are being acknowledged by founders to be of value. An example of this is the provision of local information, especially considering Cape Town's unique economic position as a major tourist destination:

> **CSF2:** *Those guys (members) tend to ask us things like "where is a nice space to go*

for the weekend?" or "where else in SA is good to go and see?" So we've become to an extent a tourist information base as well.
CSF5*: Coworking space gives them immediate access into a social network - locals, if you need your phone fixed, go there, need a rental car, go there. That too resembles a network, it just doesn't conform. What else is networking? A local gives you a referred recommendation that's part of this trust affiliated network that they get instant access to when they join a coworking space.*

Despite the competitive nature of some of the more uncommon offerings, many coworking spaces were considered by the founders to be ahead of their time:

> **CSF2:** *I don't think we're quite there yet, but I think we will get there. In terms of the interface of what we provide...I don't think SA is in the space where people will start thinking of office space as something that you can buy fully tech enabled for your industry. I do think it will go there. What I see in very wealthy economies where time really is money - people appreciate the ability within a property to plug and play. I just don't think there's enough demand for a lot of services for people to be in the position to see it worth spending the mark-up for tech-enabled spaces.*

The ability to meet the demands for alternative services that are specific to the location was therefore argued to have value, but required more evidence in support of its commercial use.

4.2.3 Business opportunities

Business opportunities are reflected in the provision of incubator programs and internal services and provide members with the option to raise more capital or increase their income. In contrast, business amenities are considered to provide the value adding factors that are either inherently, physically or geographically tied to the coworking space, with the aim of capitalising on improved company expenditure.

Incubator programs are an example of business opportunities that support start-ups by granting access to sufficient funding. Incubator programs thereby enable coworking spaces to attract innovative businesses which generally require access to funds that are otherwise difficult to acquire. As suggested by the literature by Choi and Varney (1995) in Section 2.1.3, these businesses are typically within the field of technology and supported by incubators for their disruptive potential. In some cases, incubator programs are so appealing that the coworking spaces that host them do not rely on marketing itself:

> **CSF3:** *I don't even have to market it… really important for me to bring all my VC's into, which gives a formal gravitas with all the start-ups. Seed funding in other words.*
> **CSF4:** *A lot of people want to partner up for a business incubator.*

Partnerships between coworking spaces and their members are an alternative to incubator programs and also stimulate the businesses owned by the members. Founders stated that this mutually advantageous agreement helps to provide start-ups with additional opportunities to accrue revenue:

> **CSF4:** *A lot of business stimulation - using the internal members' services. Instead of having to drive elsewhere we use those who are here. It stimulates growth internally, we vouch for the members in the space, which helps their word of mouth.*

To this end, members can enjoy partnership benefits such as a discount on their membership fee. In-turn, the coworking space is able to offer the services of the member as an extension to its own commercial offering. These partnerships have been noted to come in a variety of forms which are dependent on the specific demands of members:

> **CSF2:** *I think a good coworking space will have a solid accommodation partner, tourism partner, professional services partner.*

Start-ups are thereby able to enjoy the benefit of simultaneously reducing their expenses and gaining more exposure through the partnership. In-turn, coworking spaces can provide services beyond their own capacity.

4.3 Emergent Theme 2: Flexibility

The preceding theme that was analysed centred on the value of affordability. This theme will focus on flexibility and will be discussed by focusing on the 3rd and 4th generational codes as visualised in Appendix E.

4.3.1 Membership options

The variety of membership options offered by coworking spaces was inextricably linked to the theme of affordability, but it is equally a result of the flexible premise of coworking. Affordability reflected the ability to reduce expenditure, whereas flexibility enabled companies to remain independent of long term commitments:

> **CSF1:** *Flexibility with memberships, like a month to month type of thing… we just let them pay for exactly the time that they are here.*

Flexible subscriptions were highlighted to be in demand due to a dissatisfaction with fixed lease agreements:

> **CSF2:** *We used to market full month desks to try get people to sign up for a year or two at a time, but that hasn't been the demand.*

> **CSF4:** *We don't ask anyone to sign a long-term lease. This is something that is incredibly attractive.*

In comparison to flexible alternatives, companies locked into fixed lease agreements would previously have been limited in their options to expand their workforce once their office had reached full capacity. Consequently, such companies would have to endure the cumbersome process of relocation should they require more members of staff. Alternatively, a greater initial capital outlay could be incurred to prematurely secure a larger office and prepare for a potential increase in staff in the future. In contrast, membership subscription models allow for flexibility in the sense that companies only pay for the number of seats they require. This flexibility enables companies to grow with the knowledge that there are seats available when required:

> **CSF1:** *It's black and white because you pay rent and the limitation on flexibility that comes with that - having to rent for three years when people don't have to do that anymore.*
> **CSF4:** *Companies often comment on being able to scale so easily.*

This flexibility is especially relevant to start-ups or companies that are looking to scale in order to enhance their value proposition and reach the goals they had set out to achieve.

4.3.2 Design functionality

In terms of the physical features of the environment within which members perform their daily tasks, there are two important considerations. The first design function of flexibility is what informs the distinction between coworking spaces and shared offices. This distinction was highlighted due to the manner in which the physical working is required to meet the needs of different members from a variety of backgrounds:

> **CSF5:** *Looking at shared spaces and offices it's important to differentiate between those and what is a coworking community - which is a space that facilitates shared resources for a broad spectrum of people, be they small businesses, independents or freelancers or even remote workers - which make up an enormous part of a coworking community.*
> **CSF7:** *Coworking is very similar to a cross-fit type analogy where you buy into a culture of working alongside one another, sharing with one another and promoting each other's interest. A shared office is where you share the rent. There is a very big difference.*

Secondly, the variety of spaces is another function of flexibility that is evident from the field work. The ability of members to efficiently perform their roles is subject to the ease with which they could utilise a variety of internal and external spaces:

> **CSF1:** *I've had to do so much research into what the physical environment needs to do to lend itself for people to work effectively, creatively.*
> **CSF5:** *The growth of coworking is directly linked to how people want to use spaces.*

The functionality of a flexible environment as a physical asset is thereby valued by founders in that it is interlinked to the manner in which members prefer to complete their daily tasks. To this end, ICT and IoT devices are revealed to be paramount in enhancing the functional flexibility of spaces. These devices enable members to roam freely throughout coworking spaces without being subject to the limitations of centralised working conditions. The degree to which companies depend on adequate infrastructure is thereby believed to be critical to the ongoing success of a company:

> **CSF1:** *Yes - ICT and tech is crucial to anything anyway, whether PropTech now or later, whether you're a start-up or scaling. With the way we're moving, it's relevant to just survive as a small business.*
> **CSF3:** *Yes, absolutely, it gives the sustainability for start-ups. A particular example of such a start-up is one that started here, their head office moved to Silicon Valley, but their core team remains here because it's cheaper, but it's also self-sustaining here and not only there. And that's through local support.*
> **CSF6:** *Tech-infrastructure is as crucial as plumbing.*

A concern was raised however, that local property developers and landlords aren't always considerate of the importance of the modern-day infrastructural requirements:

> **CSF6:** *So, they'll put electricity and plumbing in, but not the infrastructure.*
> **CSF7:** *Unfortunately, most landlords don't know what a server looks like.*

Another example of flexibility included the option for members to decide about the degree of privacy they prefer. The aims of facility managers are thereby focused on providing spaces that are tailored to meet the demands for a flexible environment:

> **CSF4***: The fine balance between community and privacy. We wanted to have super transparent spaces… shutting your door, but your still next to someone.*
> **CSF6:** *In some areas it's about competitive advantage, being in innovation – who has access to what we're doing or can we develop an idea or concept of business in the relative safety of privacy?*

The ability to access spaces on a twenty-four-hour basis had also proved to be desirable for members, as was the case in the response by **CSF1**. Access on such a flexible premise requires of facilities managers to carefully consider the protocols in order to ensure that the quality of the value-proposition is upheld:

> **CSF1:** *A lot of them mentioned hours, venue-hire like boardrooms and training rooms not being available over weekends. You need to have them available because that's when people want to do stuff - like after hours.*

Despite the fact that numerous traditional commercial offices could provide the convenience of twenty-four-hour access, privacy or maintenance, it was highlighted in the data that fixed agreements were a complication. The ability of members to remain independent prevailed at the coworking space founded by **CSF5**:

> **CSF5:** *The entire company ethos is based on the fact that they are free of a bricks and mortar lease.*

Notably, the collected data reflected the narrative of the literature as documented in Chapter 2 in indicating that flexibility is not only evident in the variety of membership types and available spaces, but also with respect to payment options and the terms of use. The interviews thereby revealed that flexibility is inherent to the premise of coworking and thereby interlinked across the emerging themes.

4.4 Emergent Theme 3: Community Facilitation

Aside from the 'affordability' and 'flexibility' theme, 'community facilitation' has been identified as a prominent theme under which critical relationships could be axially coded. 'Community facilitation' is reflected in the 'relevance of technological innovation', 'presence of disruption', 'modus operandi of members' and the 'coworking environment'. The 4th and 5th generational codes will be discussed in order to form a clear picture of the dynamics inherent to the theme.

4.4.1 The relevance of technological innovation

The combined dependence and focus of companies on technology, in addition to their proclivity for innovation, was revealed to be amongst the more prominent factors that inform the market for coworking spaces.

The fixed terms of traditional leasing agreements had set a standard whereby tenants were able to enjoy the features of a property with a certain level of authority, but held no claim to ownership over the capital asset itself. The flexible subscription model of coworking spaces had introduced a paradigm shift that proved to be challenging for some tenants.

Founders did however note the ease with which tech-focused companies could adapt to the premise of the shared economy through membership subscriptions. In comparison,

companies that were of a traditional background were not always able to adapt as effortlessly, which proved to be counterintuitive:

> **CSF2:** *The traditional clients feel like once they pay for the space that they should be able to treat it the way they want to, and the tech industries are much better about that. They appreciate that coworking is not just a physical service - it is a new paradigm.*
> **CSF5:** *You try and present a solution that is coworking - you can work and have the amenities, but you have to share the space. That is very difficult for some people. They come and rent their space, but it must be theirs. This is counter-intuitive to coworking.*

In addition, a correlation was drawn between the reluctance of businesses to sign a fixed lease and their proclivity to associate with the sharing economy and disruptive innovation:

> **CSF5:** *Yes, definitely. It's like Airbnb or UBER or any other shared economy model. I'm going to start the biggest music streaming service in the world called Spotify, but I will not sign a five-year lease on bricks and mortar building.*

Tech-companies are perceived to be dependent on their environment in order to meet their objectives and be innovative. In-turn, this dependence promotes a greater perceived value that is generated through the use of coworking spaces. The ability of tech-companies to align with the function of coworking spaces is further highlighted in the field work:

> **CSF2:** *We feel that, in general, the tech-enabled fields, ICT, hardware - apart from digital marketing and that kind of stuff... all of these tech heavy companies tend to have a greater appreciation for coworking. There's greater awareness and willingness to come and look for coworking spaces, but also there's much greater acceptance of the environment that a coworking space offers.*

The types of companies that are mentioned within the interviews to be amongst the most noticeable to frequent coworking spaces are those that focus on technology and are inclined to disruptive innovation as outlined in the literature:

> **CSF4:** *A lot of the people we have as members is in technology, blockchain and fintech et cetera.*
> **CSF5:** *High tech AI guys, NGO's, EdTech - collaborators.*
> **CSF6:** *R&D, marketing, business development, innovation teams, project teams.*

Technology is considered to be the pivotal catalyst that encourages the market adoption of the shared economy, due to the manner in which it has altered the commercial use of space. Interestingly, the data affirms that the rise in the popularity of coworking is linked to the accelerated progress of technology in recent years:

> **CSF2:** *When coworking started to become popular it was very trendy around the idea of being super tech-enabled and at the forefront and being at the cutting edge.*
> **CSF4:** *I think coworking spaces have arrived on the back of that whole tech revolution.*

Moreover, this link between the tech-revolution and the rise in coworking spaces is ascribed to the value proposition of coworking to grant access to its amenities and opportunities:

> **CSF2:** *By being in the space you would be better disruption enabled in being privy to the conversation and network.*
> **CSF4:** *Enabling people to be able to work remotely and work from anywhere.*

The presence of tech-companies has also been considered to be an alluring feature that attracts more businesses to buy into the concept of coworking. In some cases, the success of a space is believed to be dependent on the presence of a tech-company amongst its members:

> **CSF3:** *I feel it's like a playground mentality - a cool factor- when we started with a tech company it took off. Where here, I don't have that tech company and it's empty.*

4.4.2 The presence of disruption

When questioned about the presence of disruption amongst the members, the interviewees had predominantly agreed that it was evident within coworking spaces. The aim to innovate and disrupt both commercial and social practices through digital solutions had been revealed by the field work to rely on the opportunities that were gained through accessing a community in an innovative environment:

> **CSF2:** *I think the link between coworking and disruption tends to be on the event side. So coworking spaces that put a lot of effort into hackathons and network events and speakers tend to be seen as disruptive spaces and they draw the right kind of people, so that when you're having a conversation around the water cooler, you get into a disruptive mindset.*

Furthermore, the relevance of access - provided by the sharing economy - supports the idea that coworking spaces are considered as an effective platform for facilitating disruption:

> **CSF4:** *Yes definitely. Right at the beginning - people who have so much motivation to promote the shared economy, it just makes so much sense… coworking spaces have given a platform to disruptive tech or thoughts and economic systems.*

Other founders indicated that they could see the correlation between disruption and coworking, but were unable to provide specific reasons as to why the correlation exists:

> **CSF1:** *I don't know - I'm not so clued up on the tech space. I believe, yes, in that disruption and innovation both need more than one head and people often from different groups and backgrounds.*
> **CSF6:** *Yeah. How disruptive it is I don't know.*

Those among the interviewees who were not convinced as to the presence of disruption had noted that they expect for it to emerge:

> **CSF7:** *I don't think so. I think it's a money grab at the moment, but the guys who are in it are starting to look towards disruption.*

One example that was of particular relevance described an account whereby a local company that was a coworking member and aimed to disrupt the market was acquired by UBER eats:

> **CSF5:** *Being a disrupter was a key principle of theirs, because they were revolutionising the online order and take away space. Did they deliberately set-out to use coworking spaces to achieve that? Not in my view. It just fulfilled the function. It increased their talent pool.*

The significance of this account lies in the fact that a coworking space fulfilled the function of providing a suitable environment for disruptive innovation. Consequently, a start-up was able to gain access to opportunities and amenities that helped to acquire the right project team. In-turn, this project team could secure the success of developing a viable product.

4.4.3 Modus operandi of members

The analysis of the data revealed that the way in which current coworking members are organising their practices and performing their tasks on a daily basis has changed as a result of technological advancement and the current epoch:

> **CSF4:** *I think coworking spaces have arrived on the back of that whole tech revolution. Enabling people to be able to work remotely and work from anywhere. What comes directly hand-in-hand with that is the typical digital nomad.*
> **CSF6:** *People using coworking spaces, especially in this era, are looking for something different, they don't want to do business as usual.*

Evidence suggests that coworking spaces factor in the manner in which their members work in order to inform the design and operation of the coworking space:

> **CSF4:** *It's been interesting to see how the way businesses' function has changed by virtue of how they operate and how the space used is changed.*

This decision is considered by interviewees, such as **CSF5**, to be of great significance due to the consideration they have made for their community of members. Decisions were not only based on trivial guess work, but were instead informed by the psychology inherent to the use of temporary space, especially that of small businesses:

> **CSF5:** *We developed that with an exceptionally good space maker… she designed the space based on a lot of research that we did on the behavioural patterns of people*

- the territorial nature of people. A big part of that is ego, especially for the small business.

Furthermore, it seemed that founders of small and medium sized coworking spaces were more knowledgeable about the specific demands that were informed by the modus operandi of their members. In most cases these demands had reflected the importance of flexibility:

> **CSF3:** *The original dev (development) team only comes to the office twice a week.*
> **CSF5:** *Part of their mission statement was that, from day one, they will be space independent.*

4.4.4 Coworking Environment

The 'coworking environment' node is reflected in both the 'intangible features', namely 'sensation of community' and 'atmosphere for innovation; and the 'tangible features', namely 'collaboration between members' and 'facilities management'.

4.4.4.1 Intangible features

Intangible features, such as the atmosphere that is inherent to the coworking environment, were observed by founders to hold merit in the opinion of members. These intangible features evoke certain feelings under members and align with ideologies such as inclusivity, community and aspiration:

> **CSF1:** *The biggest thing is because of the energy and the environment and the warmth of the space.*
> **CSF6:** *The intangible thing of "what is the energy?" And is that a kind of energy that I relate to? Do I feel at home here? Do I feel part of it or can I belong here? Is it aspirational enough?*

Another intangible feature was the ability to gain access to a specific community culture. The data revealed that the typical enquiries made by members highlighted the desire of companies to form part of a community:

> **CSF6:** *Are there other people you want to be associated with? Who could be interesting to talk to?*

The stimulation of community culture and the ability to gain reputability by association is thereby alluded to be of appeal to companies. Other responses had pointed to the fact that the sense of community surpassed the expectation of deriving any commercial value from other members entirely.

Instead, the shared sense of inclusivity has proved to be of value in itself, regardless of any commercial gain:

> **CSF3:** *They're looking for a community, not friends, but a community. They don't want to be in each other's pockets, but there is an element of wanting to be part of something bigger.*

Moreover, these intangible features are sought after by companies that base their decision to join a coworking space on the degree to which the community culture is facilitated. Companies would even relocate purely based on the atmosphere and the degree to which a sense of community is experienced in order to maximise the benefits of coworking. **CSF3** referred to a software development company that decided to relocate in order to join a community where a shared sense of innovation was stimulated by the community:

> **CSF3:** *We have another group coming in December. They are in a corporate environment and they want to leave that in order to be in more of a community.*
> **INTERVIEWER:** *(overlapping) Are you saying that… a dev (software development) team, that is working towards that kind of innovation… might be prone to coworking as a result of wanting a community that strives towards that kind of innovation as well?*
> **CSF3**: *Ja (yes).*

Companies that aim to provide new and innovative solutions were singled out by founders to have a particular affinity for working environments that were away from home and facilitated a community culture which encourages an atmosphere of innovation:

> **CSF1:** *The fact that people can start to build things in a physical environment that's removed from a home is definitely a positive contributor to anything that is innovative.*
> **CSF6:** *Innovation teams don't flourish in a corporate environment – so they need a different environment and energy, different connections and if you want innovation, you choose access to a variety of inputs and ideas. So you need to open yourself – which all speaks to a coworking or mixed or flexible environment.*

This occurrence reflects the preferences of 'skunkworks' teams as explored within the literature and denotes the importance of intangible features that promote innovation and are specific to the premise of the shared economy.

4.4.4.2 Tangible features

Examples of tangible features include the execution of commercial activities, in addition to facilities management. The field work revealed that companies that operate from home are limited to isolated work flow patterns and are likely to either stagnate or return to traditional patterns. In contrast, collaboration between coworking members provide them with

previously inaccessible alternatives that stimulate their work flow and their proclivity for innovation:

> **CSF1:** *Disruption and innovation both need more than one head and people often from different groups and backgrounds. Coworking spaces that are managed and developed in a way that lends itself to it… there will be a rise in it, because a lot of tech innovators and start-ups don't have offices, they're… in their homes, isolated.*
> **CSF4:** *It's so crucial to not become isolated with your own knowledge. I think these spaces motivate people to open up and share more.*
> **CSF5:** *The social component, which essentially results into working collaboration and partnerships in some cases, is age old. It's foundation is relationships - which takes time and sharing of space in order to develop.*

In some cases, the ability of members to enable and support their innovative practices through building these relationships, had led to the establishment of coworking spaces:

> **CSF3:** *How we actually came about our space is… we have a dev (software development) team that we fund and they ended up with more space than they needed and offered this to me to go into coworking. They wanted to have likeminded people around them.*

In addition, members were able to collaborate across industry verticals. Interestingly, another example highlighted the relevance of companies that are inclined to innovative disruption:

> **CSF4:** *Having a certain level of servicing in coworking spaces is it enables all of the professional businesses to operate in one space. It's making it more accessible. Graphic designers meeting promoters who know how blockchain works. Something that is worthwhile to their data collection or analysis for instance. Accessibility is like a movement and it's been the most impactful.*

Effective facilities management is therefore paramount to ensure that this shared office environment is able to facilitate both tangible and intangible features associated with the coworking environment. The practice of facilities management was only discussed in relation to certain aspects of coworking spaces and was not explored to its full extent. The node of 'facilities management' was therefore limited to the data as derived from the field work.

The primary benefit that is brought about by facilities management and relevant to coworking spaces is the ability to better manage the demands of members and ensure that they continue to value the utility of their working environments:

> **CSF5:** *From a FM (facilities management) point of view they introduce the changes, manage it for a set period of time and the data then speaks for itself. The case studies then show retention goes up, the productivity goes up and the company makes more money. So FM plays a valuable role.*

In light of the importance of community, it is required of facilities managers to consider the impact of their work on the entire community. Bouwer and Christiansen (1995) touch on the ability of customer needs to increase due to an evolving modus operandi, recognising the necessity for facility managers to respond to these as a basic function of their roles. As a result, the various modus operandi of companies could be diversely affected if this is not accomplished. To this end, coworking spaces are dependent on a more active and dynamic form of facilities management:

> **CSF4:** *Physically this space hosts a lot of people with different needs. Some people want quiet and others want loud. Mitigating that is important. So we want as little rules as possible. Our team is on site, so if something happens we'll know.*
> **INTERVIEWER:** *(overlapping) So it's a lot about the sensitivity of the ecosystem?*
> **CSF4:** *Ja (yes), definitely.*

Finally, due to the importance of ensuring the utility of infrastructure as mentioned in section 4.3.2, maintenance was highlighted to be of influence on the members' perception. Maintaining both connectivity and comfort was argued to be paramount to the ability of members to move between different areas within a coworking space and efficiently complete their tasks. The field work revealed that the membership subscription model of coworking spaces held an advantage over fixed-agreements with landlords, due to a perception of improved management protocol:

> **CSF5:** *Landlords did not have to pay attention to how environmentally friendly buildings are, or whether the air flow or conditioning is adequate; or whether there's parking - they didn't care, because if you need an office, then you rent mine, how it is. This (coworking) has disrupted the market a great deal more so than technology in property.*

4.5 Emergent Theme 4: Local market perception and influences

The final theme that emerged from the data focuses on the local market perception and influences, which is reflected in the 'development opportunity' and 'market sentiment'. This theme will be discussed with references to the 2nd and 3rd generation codes as indicated in Appendix F.

4.5.1 Development opportunity

The view that founders have on the opportunities for the development of coworking spaces in Cape Town varied to a degree, but was centralised around 'market saturation', the 'lack of understanding coworking' and 'developer motivation'.

4.5.1.1 Market saturation

It was evident from the data interpretation that the founders who were operating larger spaces shared the sentiment that the market is either on the verge of oversupply; or has already entered into oversupply:

> **CSF6:** *I think we're at the verge of over-supply for now, which is part of that cycle that we're waking up to now – 'oh there's something happening here so let's also do this'. So over-supply until the market catches up and then there's not much space to grow.*
> **CSF7:** *There's an oversupply.*

In contrast, those founders who operated spaces of a smaller capacity were of the opinion that the market still has the potential to grow, even if beyond the city centre:

> **CSF1:** *Here's a massive market that is untapped because everyone is opening up in town and I can't believe that that market hasn't been saturated yet.*
> **CSF2:** *I strongly feel like the market will grow a lot – we've done the math.*
> **CSF4:** *I think there's a lot more opportunity. I just don't know how long the market will take to catch up.*

Amongst the responses regarding the degree of market supply, the cyclical nature of the property market was considered by the founders to be of relevance:

> **CSF3:** *I don't know about the longevity in this form. Having seen a life cycle of 'this is how it started'; now they don't like the people; they want to work from home. So I think there might be a natural death of some that are not meeting whatever requirements. So I think there will be a natural cycle.*

4.5.1.2 Lack of understanding coworking

Another factor that founders believed to be of significance was that of knowledgeability on the value proposition of coworking spaces. It was evident that property developers do not hold a firm understanding of the demands or premise associated with coworking and could therefore not provide an appropriate supply while the return on investment was justifiable:

> **CSF2:** *I think it's an awareness issue… I think the market is in oversupply for the level of awareness at the moment, but I think the market is going to grow.*
> **CSF6:** *There's lots of misconceptions on what it means to create coworking spaces, so there will be trouble. Underlying, there's a whole lot of untapped markets. People still don't know what it (coworking) is.*

It was revealed during interviews that founders were actively spending time and effort on educating investors, property developers and consumers alike in order to raise market awareness on the concept of coworking:

> **CSF1:** *I have realised that space is needed, but that people just don't know what coworking spaces are. A large part of our marketing is actually educating people as to what coworking is and once they know they buy into the concept completely.*

Numerous examples had emerged from the data, in the specific case of **CSF1**, regarding the responses received during discussions with potential business partners and investors. It was highlighted that one investor was unaware of the simplicity of the market demand which, in-turn, resulted in the realisation that knowledgeability on the subject is particularly low:

> **CSF1:** *I was pushing for coworking where the investor was pushing more for training space. She was surprised at seeing how people also just need desks. So she was new to this and as an investor. How educated are investors on a modern-day working environment?*

In a similar example, **CSF1** had picked up on the difficulty with which investors attempt to accept the value proposition of community:

> **CSF1:** *I've spoken at an event and it was impossible for the majority of investors to imagine how this could work. One answer was: "No one needs coworking space, because we're all doing it online anyway. We're all connecting online."*

In being uninformed, traditional property investors are believed to be too out of touch with modern demands and too focused on property trends to necessarily understand how to make well-informed investments:

> **CSF1:** *The problem is that they invest somewhat blindly because it's trendy, but they don't know enough about it.*

4.5.1.3 Developer motivations

According to the data, the founders of coworking spaces believe that the motivations for investors and developers to opt for coworking spaces had originated as a result of low vacancy rates:

> **CSF4:** *People can't afford to have downtime with space.*
> **CSF5:** *When it started to hurt financially, when they started seeing that they are struggling to fill the traditional space they had no choice but to start to pay attention… Commercial property owners are only reaching out to coworking now because they're battling to fill their own spaces.*

Coworking spaces could therefore provide an alternative means through which to either secure additional revenue or to benefit the primary revenue generating function of the property:

CSF3: *They are trying to find alternative ways to use the property they already have.*
CSF4: *Residential developers want that attractiveness of feet through the door, like the apartment block in Woodstock. They did a night market to get feet through. A lot of property developers for residential have looked at it, as supposed as having a lifestyle centre or offices that you rent out at the bottom, like rather having something collaborative like a coworking space with a coffee shop and a lounge.*

The coworking model has however been criticised as a particularly difficult model to make profitable:

CSF1: *Coworking spaces really struggle to make money however.*
CSF2: *It's a fickle thing to make a good yield on.*
CSF6: *So it's not an easy model to make profitable, sustainable. It can be done. I think it is (a good investment), but it can go wrong.*

The founders have also noted that investment decisions are subject to misconceptions around the effectivity of coworking spaces as a vehicle for revenue generation. Amongst the reasons was a general disregard for the benefits that are typically valued by members, such as community for example:

CSF2: *I've heard a couple of developers just say: "coworking charges eight hundred (800) a square metre, who cares, just put the desks in." That's obviously not going to work.*
CSF4: *It's not just a coffee machine and the internet always.*
CSF5: *A commercial landlord look at it and understand I can take a R100/square metre and increase it, but it doesn't just work that way.*

The data also alluded to the fact that investors and developers are not fully aware of the capital outlay required to effectively operate and maintain a coworking space:

CSF4: *I do think the capital input to make a space fully efficient is more than assumed.*

4.5.2 Investor sentiment

Investor sentiment was reflected in 'investor responses' and 'risk factors'. These are discussed below.

4.5.2.1 Investor responses

It had emerged that the majority of founders received positive feedback from investors during their discussion on the subject of coworking spaces. Despite the development of coworking spaces being subjected to a lack of insight, founders in their majority agreed that investors will continue to perceive coworking spaces as a desirable investment for the foreseeable future:

CSF1: *It will become increasingly desirable… more and more people are wanting to start coworking spaces.*
CSF4: *There's been so much interest. Whenever there's a new place, everybody wants a coworking partner. The demand has been quite high.*

The cost effectiveness of the membership subscription model was amongst the most notable factors in support of developing coworking spaces, while subtle references were also made to the shared economy:

CSF5: *Coworking started on the foundation of I need this office, so people can share the costs and now property developers buy out sites to do coworking.*

Founders had also alluded to the fact that investors are simply responding to the trend of buying into coworking spaces with the hope of making a quick return on their investment:

CSF1: *There's value, but investors have mostly responded once they realise it's a trend.*
CSF7: *Yes, everyone responds positively to a gold rush.*

It was also noted that investors were drawn to coworking spaces by proxy of the presence of disruptive innovation and the allure of tech-companies:

CSF1: *So much CSR funding and investment are going to tech-start-ups, because it's trendy to fund at the moment and a lot of that comes with coworking spaces.*
CSF4: *With the number of foreign investments we've had a lot of interest of international investors that want to enter the market, instead of starting a business with their own ideas and concepts they want to take over SA business and just do the role out.*

In contrast, founders who could not verify the view that investors have on coworking believed that investor sentiment is still to be proven. It was also revealed that the key performance indicators of coworking are more complex than simply measuring the quantity of membership subscriptions:

CSF6: *I think that's still to be proven. WeWork has lots of money, but it's not performing. We could say that we could have the same as with the internet bubble that you have. It's not all about access and the number of members.*

The only interviewee who has received some negative responses, **CSF6**, stated that the South African market is not mature enough to adequately perceive the benefits and disadvantages of coworking. It was added by the same interviewee that investor perceptions are slowly changing, but that they perceived risk to still be quite high in the short term:

CSF6: *So start-up and acceleration investment is different to property investment. These worlds still have to integrate more. Internationally is different. WeWork and others get huge equity investments. They look at it (internationally) like software start-ups. You need to build it up, there's phases, there's changes. South Africa is not that kind of market yet, they don't see it yet.*

INTERVIEWER: *(overlapping) Why would you see South Africa as not being able to tap into that yet?*
CSF6: *South Africa doesn't have a culture of venture capital investment. You hear it even in the software market. People go to Israel, Silicon Valley. It's a different risk assessment here and a different model.*

4.5.2.2 Risk factors

One founder noted that an investment in South African coworking developments are especially risky due to the issue of knowledgeability:

> **CSF6:** *I think SA is risky for people. What is your backup? You don't have bricks? What do I actually invest in? With tech everything is non-touchable. That's a different cause. There's still some time to go.*

The misconception of investment in coworking developments is thereby attributed to the inability of developers to differentiate between the operation and facilitation of a community:

> **CSF6:** *There's still a mismatch between what coworking does and property building does. So if property building is the hardware, you could say coworking systems are software that make buildings work.*

The knowledgeability on the subject of coworking spaces is not wholly exclusive to industry professionals outside of the coworking industry however. The limitation on the availability of recorded membership data, as requested for the purpose of collecting supplementary documentary evidence, revealed that coworking spaces also lack vital market information.

Only one of the founders was able to provide a detailed list of companies who have previously subscribed to memberships at their coworking space. This detailed list included:

- The names of the companies that were owned by members;
- information identifying the industry vertical that each company belongs to;
- the starting date on which the respective membership subscriptions were activated;
- and the exit date on which the companies who have since left had terminated their memberships.

Of the remaining founders, only one other was aware of a similar list specific to their coworking space, but could not readily grant access to the document as it was never formalised or made digitally accessible. The rest of the founders could informally recall some members, while others could only provide partial information on the companies of previous and active members. Neither of the latter had ever officially recorded specific details equivalent to that of the member who provided the detailed list.

This revealed that founders were unable to make decisions based on accurate, quantifiable data that reflects the nature of their own membership base. Moreover, this lack of insight increases the risk for investors in light of the significance of a coworking space's community of members.

Another factor of risk is that of South Africa's unpredictable economy. Cape Town is considered as high-risk exposure due to an increase in property prices and in being subjected to the contextual risk that is related to the national economy:

> **CSF2:** *In terms of new markets like SA (South Africa) where you're fighting against awareness and market size, it's tricky to monetise a coworking space properly - especially in Cape Town where property prices are quite high. It's tricky to generate a good yield through coworking.*
> **CSF6:** It's a huge commitment. It's high exposure. So if the economy goes down, this whole industry will have a major shake-up.

The data highlighted that investors and property developers often approach coworking spaces as a vehicle for gaining quick returns on their investment. The flexible subscription model was argued to be frequently subjected to the misconception of property developers:

> **CSF5:** *Any property developer will say that hot desking is the best thing since sliced bread, because it's like a restaurant. You can turn the restaurant two, three times a night or in one session. Hot desking looks great because you can oversubscribe your membership, because you know nobody will use the space at the same time - you have space for twenty hot desks, but you sell fifty memberships and you make your money? No.*

According to the data, investors are perceived to fall short due to a lack of awareness surrounding the value of community and the shared economy:

> **CSF1:** *The investor is blind to the benefits of their social investment. So what are they doing? What are they providing for start-ups that wouldn't have been provided for otherwise? And how do they capture that value and show it to investors to see: "look what this space has been able to generate"?*

The financial gain of coworking was also said to be a slow process and does not reflect the aims of developers and investors to generate quick returns:

> **CSF1:** *The thing about coworking is that they are affordable and intended to not break the bank accounts of people. So as an investor to think they will make millions in the first two years is ridiculous. You're not hitting a market with people immediately making millions.*

It is suggested that the demand for coworking spaces will grow as a result of higher demand for models that are based on the shared economy. Concerns were however raised regarding

the duration over which property developers will aim to supply the market with adequate working environments.

Contextual risk provides a challenge in an already challenging economic landscape. In addition, the risk associated with development was increased as a result of the investors' and developers' inadequate knowledge on the subject of coworking. Moreover, the risk exposure is believed to be even higher due to the inability of coworking spaces to provide accurate quantifiable data that reflect their community of users.

4.6 Conclusion to chapter 4

The themes and categories that emerged from the fieldwork data have been presented in this chapter. The relevance of the emergent themes, namely affordability, flexibility, community facilitation and local market perception and influences was discussed and elaborated on. To this end, insight could be gained regarding the evolution of work, the requirements of companies, changes to office environments and the understanding of functional space. The correlation between disruptive innovation and the establishment of coworking spaces could therefore be revealed to reflect early indicators as suggested in the literature. Additional findings revealed that important players in the real estate market, namely investors and property developers, are not fully informed as to the perceived value inherent to coworking. This lack of insight could impede positive developments within the changing landscape of the commercial market for property.

The next chapter will discuss the interrelations between the emerging themes in order to highlight the core category. The grounded theory of the impact of disruptive innovation on the demand for coworking space can thereby be developed. The reliability, validity and limitations to this development will also be discussed. Finally, reflections and suggestions by the researcher will conclude the next chapter.

Chapter 5: Findings of the grounded theory

5.1 Introduction

The emergent themes that were extrapolated from the collected data through the refining process of iterative coding were discussed in the previous chapter. This chapter discusses the identification of the core category as determined through the selective coding process. Part of the coding process “progresses towards discovering the central/core category that identifies the primary theme of the research” (Saldana, 2013: 209). The core category thereby serves as the central theme according to which the findings of the grounded methodology is substantiated.

The establishment of a grounded theory of the impact of disruptive innovation on the emergence of coworking spaces will consequently be discussed. Findings revealed through the process of induction aim to support the extrapolation of the core category. In order to conclude the grounded theory, the theoretical propositions will be elaborated on. The problem statement, research aims, research objectives, research questions and research limitations will be revisited. Finally, in light of the research process, the reflections of the researcher will be provided.

5.2 Establishing the core category

The emergent themes that were extrapolated from the data denoted the intricate nature of the relationship between coworking spaces and disruptive innovation. The basis of this relationship is informed by the value proposition of coworking for businesses focussing on innovation and disruption. The analysis of the categories reveals that the aforementioned value is found in the appeal of affordable and flexible working environments through which a community, business opportunities and additional amenities are made accessible. Coworking spaces provide companies with access to working environments of this nature and are, for this reason, argued to be in demand, as reflected in the literature (Baum, 2017; Seo et al., 2017).

Furthermore, it was revealed that businesses in Cape Town face financial barriers-to-entry as a result of high office rental. In addition, companies were found to desire access to amenities and business opportunities which would in-turn strengthen their economic

position. Businesses were specifically looking to achieve a stronger economic position by being enabled to reduce capital expenditure; or by gaining amenities which could assist to increase revenue. Moreover, in comparison to established businesses, start-up companies were especially dependent on sourcing affordable office space as a result of having limited access to initial capital. The significance of the limited capital outlay possessed by start-up companies reflects the findings of the literature review (Paterson and Preece, 2017; Yardi Matrix, 2018).

Flexibility through amenities and short-term leases

It was also evident that the operations and services of businesses were greatly affected by the integration of technology and digital solutions. Technology has enabled employees to complete their assignments in a flexible manner while out of the office which, in-turn, meant that a centralised headquarters was no longer necessary. Companies started to operate in a decentralised fashion, independent of fixed locations and thus, challenged the traditional modus operandi. This paradigm shift resulted in a new psychology that aligned with the premise of flexibility and demanded a property model that could facilitate it, confirming the findings of The Instant group (2018) and Paterson and Peerce (2017).

Flexibility had therefore emerged from the data as an integral component to coworking. Coworking spaces capitalised on the demand for flexibility by offering membership subscriptions and a dynamic approach to facilities management. The provision of flexible memberships would in-turn allow companies to eliminate the risks associated with fixed lease agreements. Not only are companies able to terminate their membership on request when circumstances require it, but they are also no longer limited to cumbersome lease agreements or properties that are subject to availability. Instead, companies are enabled to scale more easily should the opportunity for growth arise. Hence, these companies can greatly reduce both capital expenditure and operating expenses - this was highlighted to be of considerable value to companies in the technology industry. Moreover, in conjunction with the findings regarding the relevance of start-ups, it further supports the findings of Yardi Matrix (2018), in that the ‘tech-sector’ has the largest percentage of start-up companies.

The literature had also stated that offices require dynamic development policies and approaches to management practice (Seo et al., 2017) in order to strengthen the coworking community and provide start-ups with access to flexibility. It was revealed that coworking

space operators planned for their facilities management department to adopt a fluid and responsive approach by employing on-site managers that are committed to the requirements of their members. Consequently, the nature of operations evolved to more readily respond to the requests of members. Moreover, amenities became more accessible on-demand, saving members the cost and effort of finding appropriate alternatives that are simultaneously within their means and available. Traditional commercial offices could provide a combination of the amenities that are synonymous with coworking spaces, but the premise of inherent flexibility is more significantly integrated in coworking spaces, if not exclusively. It is important to note that the founders of coworking spaces did not suggest there to be exclusive value in gaining the ability to access functional office space at one's own convenience. The ability to remain independent of fixed or otherwise rigid lease agreements was suggested to be of equal value.

The importance of tangible and intangible features of working environments

The refinement of the categories further revealed that access to an innovative working environment is of critical importance in delineating the value proposition of coworking spaces. The nature of work was found to be reflected in the modus operandi of companies and the attributes of the environment that facilitate them. Founders of coworking spaces believed that the modus operandi of their members is central to determining the manner in which office environments are utilised. In some cases, founders had capitalised on the aforementioned belief by using spatial design to address behavioural patterns and obtain an advantage over competitors.

The working environment was reflected in both tangible and intangible features. Intangible features, such as an atmosphere for innovation and a shared sense of community, were argued to stimulate the motivation of members. In addition, communities provide members with the ability to gain credibility by association. Companies that are inclined to disruptive innovation could thereby enjoy reputability and hope to acquire greater business opportunities as a result. Smaller companies, such as start-ups, were specifically identified in being drawn to office spaces that provide credibility. However, the simple notion that companies are enabled by a community to become part of a greater cause is also suggested to have merit.

The value of access to a community is perceived to be so significant that companies would relocate to alternative spaces in search of more suitable communities. In particular, a software development company was referenced in this regard, which ties back to the relevance of companies that stimulate the market for disruptive innovation by either striving towards it or providing services that aid their clients in achieving it.

To this end, the example indicated that access to an environment where companies share an aligned vision, such as disruptive innovation, is of importance. Furthermore, it is evident from the data that teams who aspire to innovate are especially drawn to environments that are exposed to frequent interactions and creative stimulation. This occurrence reflected the findings of the literature which highlighted the link between the shared economy and 'skunkworks' teams (Rogers, 2010; Yardi Matrix, 2018). Prior to being able to access innovative communities, companies were left with little choice but to work from home or in isolation.

The tangible features of the coworking environment provided start-ups and innovative tech-companies with access to opportunities that enhance their progress. In one case, the demand for a coworking space was so great that a software development company offered their own offices to be utilised as a coworking space and looked for possible coworking space operators. This event is of particular significance in understanding the value of the features of a working environment. Moreover, it is evident that members are not limited to specific industry verticals. However, companies who are technologically inclined and prioritise innovation are of benefit to members within their community; and across the majority of industry verticals.

A final note on the tangible features of the coworking environment include the distinction between shared offices and coworking spaces. Coworking spaces place an emphasis on the importance of the culture that is synonymous with coworking. In contrast, shared office spaces do not prioritise or share the aim of facilitating a community. The culture of coworking is based on the premise of sharing ideas and promoting the interests of your community, whereas shared offices are simply a means to distribute operating expenses. Companies that seek to work in environments where community is facilitated would therefore be more inclined to utilise coworking spaces to reap its benefits.

Opportunities for development and investment in Cape Town

Development opportunities and investor sentiment in Cape Town was the final theme to emerge from the data interpretation. This theme was reflected in the 'nodes' of market awareness, market saturation and educating the market on the subject of coworking spaces. It's clear that knowledge on the subject of the coworking space model is still lacking, which presents a challenge to developers and investors alike. Notably, flexible access to communities and innovative environments at affordable rates remained at the core of what founders believe to be the most significant consideration for all parties involved. The founders of some coworking spaces were able to initially establish their business models without any investment due to the lack of coworking space supply. The opportunity to provide a work desk and the necessary infrastructure to run a business online thereby became a significant value proposition in the City of Cape Town.

Market factors and professional perceptions play a smaller role in terms of access, due to the degree of its relation to the influence of disruptive innovation on the establishment of coworking spaces. The sentiment of investors and developers was found to have little influence over the reasoning of companies that decide on utilising coworking spaces. A hypothetical argument could be made for the ability of investors and developers to increase affordability by supplying the market with more coworking spaces. Still, the availability of more coworking spaces was not found within the research to be an influence of critical concern.

Integration of the emergent themes

Following the coding process and analysis of the emergent themes, it was made clear that the emergent themes are interconnected. The dependency of each of the emergent themes therefore requires to be further investigated. Affordability is dependent on the implementation of flexible models that meet the demands of companies that are driven towards disruptive innovation. Flexible models enable companies to pay less while enjoying access to more amenities.

Furthermore, there is a desire to access the benefits of an environment within which innovative companies flourish. The local market supply was found to be lacking in terms of access to affordable, flexible and innovative working environments, but the founders were

divided as to the evidence surrounding the level of market saturation. The connection between the emergent themes is illustrated in Figure 4.

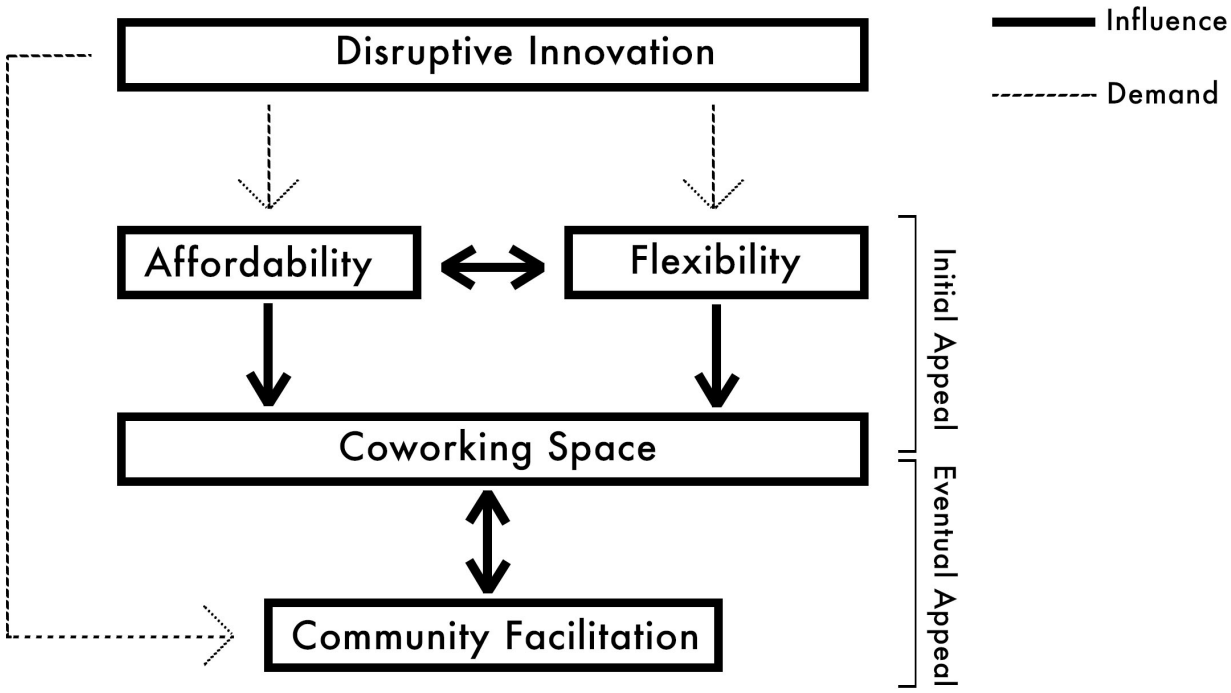


Figure 4: Integration of the emergent themes

It is common among Cape Town based companies that strive for disruptive innovation to seek out spaces that are accessible through flexibility and affordability. Coworking spaces are considered to be a solution created by developers that capitalise on the interdependence of flexibility and affordability. This was revealed by the fieldwork to be the initial appeal of both using and developing coworking spaces. In time, the combination of companies who subscribe to coworking spaces establish specific coworking communities and expand, dependent on the degree to which the benefits of their coworking environment are managed. The facilitation of these communities became paramount to retaining the memberships that are responsible for contributing to the sense of community. Community facilitation was thereby established as an eventual appeal that formed over time and has since become equally important to the increase and continuation of market demand.

Investors and developers responded to the market by supplying more coworking spaces through the combined incorporation of flexibility and affordability. Notably, their insight pertaining to the market is limited to the knowledge that flexibility and affordability are valuable factors of consideration for modern companies. Investors and developers had therefore only focussed on the initial appeal of coworking as indicated in Figure 4. According

to the founders of coworking spaces, there is a lack of insight regarding the eventual appeal of facilitation of communities. Regardless of the degree to which investors or developers are informed, it is clear that the market for disruptive innovation has an influence on the establishment of coworking spaces, albeit one that is veiled or indirect.

The core category that is established through the coding process, analysis of the data and the framework as developed and depicted in Figure 4, is therefore *accessibility through flexibility*. Accessibility through flexibility meets the six criteria for a core category as set out by Strauss (1987) and described in chapter 3. Flexibility has emerged from the analysis to be prevalent throughout data, essential to the emergent themes as depicted in Figure 4 and related to other categories. Flexibility can also relate to other general theories, namely the integration of flexibility to other building typologies, and allows for itself to be subjected to maximum variation during analysis.

Due to the specific circumstances under which the research was completed, a substantive theory was identified to be the most appropriate basis for the grounded theory. The grounded theory of *the impact of disruptive innovation on the demand for coworking space* is thereby formulated as a result and informed by the theoretical framework as developed in the second chapter; the emergent themes as developed in the fourth chapter; and the core category as developed in the fifth chapter.

5.3 Establishing the grounded theory

The emergence of coworking was established in previous chapters to be affiliated with the initiative of firms and industry to adapt to the user demand for socio-technological environments (Christensen, 1997; Waters-Lynchet et al., 2016:2). In addition, coworking promotes a collective, community-based approach that is supported by the sharing economy where smaller organisational orders, such as project teams or start-ups, primarily enjoy the benefits that stem from its inherent flexibility.

Affordability through flexibility and access

It is through the incorporation of flexible memberships and the dynamic availability of amenities that coworking spaces are able to provide access at affordable rates. The findings of this study therefore reflects the views of Waters-Lynch et al. (2016) in that transactional

and operational costs are reduced by placing the modern requirements of companies at the centre of the coworking business model. In turn, affordability enables more flexibility in that members can redistribute their expenditure to further increase their company's flexibility.

Improved coworking environments through dynamic management

Furthermore, the dynamic implementation of management allows for coworking communities to leverage the coworking environment to their advantage. The fieldwork had revealed that members of coworking spaces who associated with the industry of technology are particularly dependent on relational proximity, as discussed by Ross and Ressia (2015) and Parrino (2013). Moreover, the views of Paterson and Preece (2017) were reflected in the finding that the founders of coworking spaces actively optimise their environments to suit the modern needs of their members, who openly challenge the traditional design of functional space. Coworking communities have therefore become empowered in having become the focus of the coworking operators. The dynamic responses of coworking operators stimulate the growth of their communities which, in-turn, contributes to the promotion of flexibility.

Flexibility is thereby interconnected to both affordability and community facilitation, sharing a mutual influence with each as depicted in Figure 5. It is through this interconnectivity that coworking spaces provide access to what modern companies consider as functional space. Flexibility can therefore be considered as the foundation to the embodiment of the sharing economy in commercial real estate.

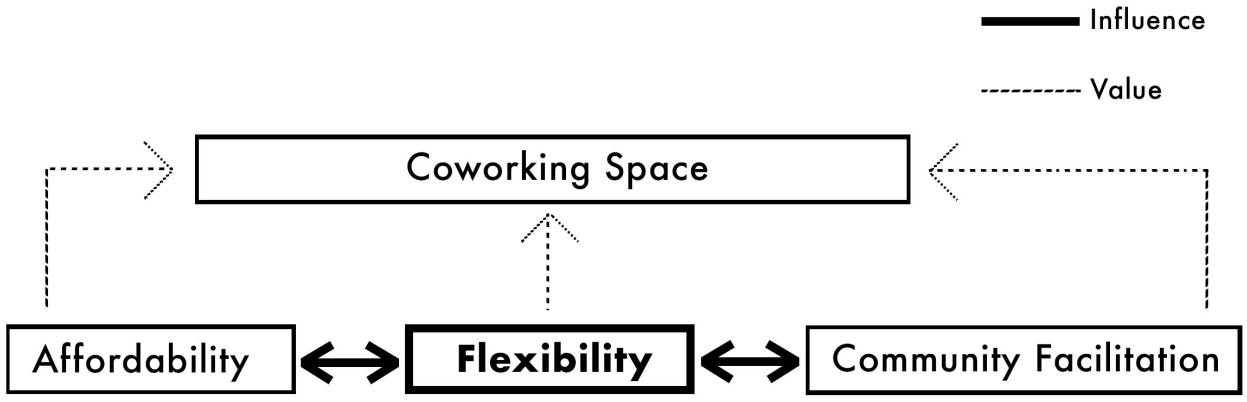


Figure 5: A framework for establishing the core category

It is as a result of the sharing economy that tenants of commercial spaces are able to enjoy the same ability to choose access over ownership that other industry verticals enjoy, as proposed by Kelly (2017).

The findings of this study highlights the importance of awareness regarding the value of flexibility in commercial real estate. This value can be improved by raising awareness and providing more insight to key players in the real estate market. In doing so, real estate developers, investors and the founders of coworking spaces can significantly optimise their respective models for generating revenue. Risks to the market for coworking spaces can be mitigated and allow companies to enhance their use thereof, which would provide further insight to all interested parties. To this end, coworking operators can leverage the information as data points according to which they can improve their understanding of the market for coworking and, in addition, educate the market.

5.4 Contribution to knowledge

The research contributes to the body of knowledge on the impact of disruptive innovation on the demand for coworking spaces by shedding light on the correlation between a specific commercial phenomenon and the establishment of a unique property typology. At the time of this study, it was found that no research of coworking spaces have successfully been completed at tertiary level at any academic institution of South Africa. Investors, developers and founders who wish to establish additional coworking spaces require more insight into those factors affecting the successful operation thereof. A total of six ways in which this study contributes to the body of knowledge will therefore be elaborated on.

Firstly, the research established a significant relationship between coworking spaces and the market for disruptive innovation. A coworking space integrates the premise of flexibility throughout its business model and can, as a result, provide access to a combination of benefits that are exclusive to coworking spaces. This access was confirmed to be especially appealing to companies that develop solutions which align with tech-driven information systems and marketplaces. This knowledge enables investors, developers and the founders of coworking spaces to better understand the inherent value of the benefits of coworking to a specified target market.

Secondly, the importance of the sharing economy and its value to the property market was established. The sharing economy was identified by the literature to be of significance for the future of commercial property and was confirmed by the fieldwork to influence the demands of Cape Town based companies. Flexibility is also a product of the sharing economy, in that the members of coworking spaces are able to enjoy the benefits of a commercial property without incurring capital expenditure or being solely responsible for upkeep. The sharing economy is therefore a critical component to the future of real estate in Cape Town and can be considered a viable solution for geographical locations with a similar socio-economic context.

Thirdly, the factors that are considered to make coworking appealing to Cape Town based companies have been established, namely flexibility, affordability and community facilitation. Moreover, the relationship between these factors provided insight into the development of market demand. Companies may be initially attracted to all three of the aforementioned factors, but the data revealed that in many cases new members are unaware of the value of community facilitation. The initial appeal of coworking can therefore be argued to be centred more around flexibility and affordability. In time, members come to realise the value of community facilitation and may even decide to relocate to a different coworking space in order to become part of a community that is more suitably facilitated in their opinion. Interestingly, the founders of coworking spaces believe that the predominance of affordability and flexibility, as an initial appeal, is reflected in the sentiment of investors and property developers. The fieldwork revealed that investors and property developers are believed to focus more on the initial yield, than the future success of coworking spaces as a business model. This could potentially lead to poor consideration for the future-proofing of property developments with coworking spaces as anchor tenants. In contrast, the founders of coworking spaces focus their efforts on retaining memberships and growing their coworking communities. Growing communities have proved to indicate successful community facilitation, which in-turn promotes the coworking spaces that enjoy an increase in membership retention.

Fourthly, the investors' and property developers' lack of understanding the total appeal of coworking spaces was highlighted. The appeal of community facilitation was singled out by the founders of coworking spaces as a demand of which investors and property developers were unaware of. The aforementioned parties can thereby focus on increasing their

knowledge regarding the appeal that community facilitation holds to its members - especially those within the growing market for disruptive innovation.

Fifthly, it had been found that the majority of coworking spaces did not keep a database of information regarding the industries of its members on record. The fieldwork revealed that only one coworking space was able to provide data that could be used in order to determine the industry of its members. A lack of the aforementioned information may impede on the ability of coworking spaces to target appropriate market audiences, resulting in a less successful market response. Moreover, community facilitation could still be underdeveloped in not having utilised information of this nature in order to improve on the provisioned access to benefits and amenities.

Finally, this study revealed new lines of inquiry that can be investigated in future research on either the topic of coworking, disruptive innovation, the sharing economy or the demands of Cape Town based companies. The research can for example be valuable in future discussions and decisions that revolve around the value of coworking spaces, the appeal of flexibility and the consideration for user-centric business models in the real estate sector.

5.5 Revisiting the research problem

The emerging market for disruptive innovation is changing user demand and altering the user's understanding of functional space. It is evident from the fieldwork that user demand in Cape Town has changed in that companies are increasingly seeking out more flexibility in terms of lease agreements and access to amenities. The user's understanding of functional space has been altered in its requirement for adequate ICT and IoT integration within office environments.

Due to the value that is attributed to the concept of an innovative working environment, those that cannot provide fast and stable internet connections or a variety of interior and exterior spaces that cater to different needs, are no longer considered to be functional. It is revealed in the data that innovative working environments are based on the premise of flexibility as the main driver towards more affordable access and adequately facilitated communities.

5.6 Revisiting the research questions

> What factors of the coworking typology are beneficial to users of functional space within the emerging disruptive technology market?

The factors that are of benefit to this specific user group are that of affordability, access to specialised facilities, access to specialised amenities and dynamic community facilitation - all of which stems from the factor of flexibility.

> What is the connection between coworking spaces and the market for innovative disruption?

The market for disruptive innovation is based on buyers, investors and the businesses that develop these solutions. The latter of which comprises of companies that are indicated by the fieldwork to increasingly inhabit coworking spaces as a result of the benefits that are accessible through coworking environments.

5.7 Revisiting the research proposition

The proposition that a relationship between the development of coworking spaces in Cape Town and the emerging market of disruptive innovation can be established, was found to be correct. Cape Town has been identified in the literature review to have a progressively growing market for disruptive innovation in being regarded as the gateway to technology in Africa. In conjunction, the amount of coworking spaces that appeared had greatly increased since the concept was introduced.

The fieldwork revealed that the founders of coworking spaces expect the market for coworking to continue to scale as a result of the recent demand by companies that require innovative and collaborative spaces, despite any early indication of market saturation. Distinct parallels were also drawn between the demand for innovative and collaborative space and companies who provide services that contribute to the market for disruptive innovation. It can thereby be said that a correlation exists between the increase in the establishment of coworking spaces and the increase in the market for disruptive innovation.

5.8 Research objectives

The research objectives were listed in Section 1.7 as follows:

- Identify which factors of the coworking typology are deemed beneficial to users within the emerging market for disruptive innovation and indicate which factors were decidedly less applicable.
- Determine whether coworking spaces hold greater value than traditional commercial office spaces that are owned by incumbent firms.
- Determine whether the establishment of coworking spaces in Cape Town should be considered a viable investment by property specialists.

Factors that were deemed to be of importance included affordability, flexibility and community facilitation. The physical design of a space was decidedly less important in comparison to the three aforementioned factors. Hence, objective one was achieved.

Coworking spaces, as a new model for working environments, was noted in the findings to be of greater value than traditional commercial office space due to the preference of companies for access over ownership thereby achieving objective two.

An increase in the demand for models that are based on the shared economy points to the likelihood that coworking spaces could be considered a viable investment. However, the viability of such an investment should be offset by the contextual risk that is prevalent in a challenging economic landscape, such as that of South Africa. Hence, objective three was achieved.

5.9 Research implications

The findings of this study provide academic support and market related evidence to developers and investors within the real estate sector that could enable them to make better informed decisions relating to the supply of coworking spaces. Moreover, the findings shed light on the general views shared by the founders of the coworking spaces. These views could provide insight to those interested in the industry, and more specifically within the Cape Town region.

5.10 Validity and reliability of findings

Validity: Selecting both an appropriate means for measurement and data sampling strategy ensured validity in this study. The data sampling strategy described in section 3.3 ensured that the appropriate participants were selected and had resulted in a population size that satisfies the requirement for theoretical saturation as described in chapter 3.2.

The interview questions within each category were formulated to cover all the necessary aspects, deemed important by the literature, to improving an understanding of coworking spaces and its relation to disruptive innovation. Both construct validity and content validity was thereby further improved upon. Face validity was achieved as interviewees understood the intent of the questions and could follow the progression that occurred throughout the interview.

The findings of this study had emerged through using grounded methodology, which determines that the relationship between the various themes are authentic and only affected by factors inherent to the coding process of this study. The findings can therefore be considered to have internal validity. This study also provides both context and insight to the topic of coworking and disruptive innovation, while enabling future research to draw from this context and to test the data under different circumstances. To this end, the findings have potential to be transferred to other contexts.

Reliability: Reliability was sought after through the implementation of a consistent data collection method and by ensuring that similar conditions were maintained during data collection, as described in section 3.3.2. All interviews were completed within a 60 day period to reduce the potential for any dramatic market effects to impact on the views held by any percentage of interviewees, while still allowing for some weeks to pass to support test-retest reliability.

The same interview outline was used across all interviews and questions were specifically formulated to obtain answers that relate to the research questions or could otherwise add to the richness of the data. Some questions were repeated and rephrased across the categories to provide clarity and reduce the risk of misinterpreting the interviewees' responses. As a result, the answers provided by the interviewees were similar in nature and indicative of both a high inter-rater reliability and high internal consistency.

5.11 Research limitations

The data collection process and subsequent findings that are of relevance to this dissertation were limited to:

3.5.1 The views of founders of coworking spaces that were located in areas that fall within the City of Cape Town.
3.5.2 Those respondents that accepted to form part of the research and were available to be interviewed.
3.5.3 The membership data of coworking spaces that were located in areas that fall within the City of Cape Town.
3.5.4 The availability and adequacy of officially recorded membership data.
3.5.5 The approval of founders and managers of coworking spaces that possessed over officially recorded membership data.

Despite the geographical limitation to the views of coworking space founders located in areas that fall within the City of Cape Town, the data proved to be sufficient in achieving theoretical saturation. Additional data could be argued to have further emphasised the emerging correlations, but would not have been critical as the study was of a qualitative nature. Not all coworking space founders that were contacted were responsive however, despite numerous attempts at contact. As a result, it could be possible that additional categories emerging from the correlation between disruptive innovation and the increase in the establishment of coworking spaces have yet to be explored.

The limitation on the quality or availability of membership data had indicated a lack of awareness and insight on the part of coworking operators. The limitation had therefore revealed a significant finding regarding industry knowledge.

5.12 Research reflections and suggestions

Some final reflections are shared in this section to conclude this research. Observations during the fieldwork sparked several questions and thoughts that could be considered for future research. Primarily, questions revolved around other potential research methodologies, the influence of the findings of this study, and the views of other parties that are involved in the growing market for coworking spaces.

Firstly, other potential research methodologies that implore the use of quantitative research, for example, could reveal vital statistics that provide another dimension of data. This approach could result in deeper market insight, but requires adequate access to quantitative data. In the case of coworking spaces, this data is poorly recorded by coworking space operators, if at all. If quantitative methods suit the premise of the study, then future researchers could thereby attempt to manually collect this data by circulating a survey to a large sample population across numerous coworking spaces.

Secondly, the question was asked whether founders, developers and investors would consider improving on the degree of market insight they rely on before supplying the market. Despite the importance of this data, the real estate sector has proved to be slow to adopt new business models and solutions. It can therefore not be guaranteed that professionals within the industry vertical would reconsider the factors that inform their current market sentiment. In addition, the recent negative sentiment that resulted due to WeWork's attempt to list the company could be argued to have impeded on the sentiment of industry players. Following the acquisition of WeWork by Softbank, there could be a tipping point regarding market sentiment. Moreover, WeWork is but a single company amongst thousands of others in a growing market for coworking.

Thirdly, it would be of interest to explore the views of the members of coworking spaces. This study only investigated the views of the founders of coworking spaces, which is only one half of the dialogue, albeit crucial to the aims of this thesis. Factors such as member expectations, decisions and experiences would be significant in understanding the problem from a parallel vantage point.

It is therefore suggested that future research investigates the following ideas:

1. Can any correlations between an increase in coworking and specific industries be established through quantitative research?
2. What factors of importance emerge from coworking space members' perspectives?
3. What factors of importance emerge from developer and investor perspectives?
4. What impact does the failure of a leading player in the disruptive market, such as WeWork, have on market sentiment?

Appendices

Appendix A: Interview Questionnaire

Qualitative: Host Interview (Facilities Managers or Owners of coworking spaces).

A. On users/members and demand and supply.

1. Can you identify specific user demands that you consider valuable?

2. Do coworking hosts provide an appropriate supply of coworking spaces available to the market in order to meet these demands successfully?

3. What are some of the general complaints raised by users/members of coworking spaces?

B. On the relevance of the IoT (Internet of Things), ICT (Information and Communications Technology) and disruptive innovation.

1. Do you have a view on the influence of either ICT and/or IoT on the use of coworking spaces? Please elaborate.

2. Do you believe that there is a correlation between a desire for disruptive innovation and the use of coworking spaces? Please support with an example.

3. How, if at all, are coworking spaces contributing to the era of disruptive technologies and industry 4.0?

4. Is the utilisation and/or dependence on ICT or IoT of local businesses critical to the establishment of PropTech in South Africa?

C. On local sentiment.

1. Is there any supporting evidence, to your knowledge, against increasing the supply/development of coworking spaces in Cape Town?

2. Is there any supporting evidence, to your knowledge, that the typology of coworking spaces allow for it to remain desirable to investors?

3. Have investors and developers responded positively to discussions on coworking spaces? a. Follow up: Can you provide an example of the reasoning generally attributed to their responses?

Appendix B: Sample interview transcript

INTERVIEWER: On users/members and demand and supply, can you identify specific user demands that you consider valuable?

INTERVIEWEE: We don't ask anyone to sign a long term lease. This is something that is incredibly attractive, especially to global companies who do satellite offices here or that's just starting a little of their operations in a different country. Obviously in South Africa we have cheap labour and that's quite an interesting thing. So companies often comment on being able to scale so easily. When it comes to tech based, let's say supporting features, we spent a lot of time and energy on biometric access, we host our own hard fibre line in our server room, we have IT support on site. Fully equipt, fully services, fully staffed.

INTERVIEWER: (overlapping) So it's not auxiliary function, it's very much a primary focus.

INTERVIEWEE: Ja

INTERVIEWER: Do coworking hosts provide an appropriate supply of coworking spaces available to the market in order to meet these demands successfully?

INTERVIEWEE: It's changed quite a lot. I think it does. It's going to be very interesting in the next year, because as supposed to coming from rudimentary (which is more space and not community), to now with 8 shared desks, I think we're in a weird flux. I think there's a lot more opportunity, I just don't know how long the market will take to catch up. We've had a lot of opportunity in Joburg where I've done my feasibility and property is just still too cheap. The market's receptiveness, Joburg people want their name on their building. In Cape Town there's still some hesitation, but I think the next year will show some interesting results. There are big role outs and smaller spaces with big property group implementing structure already.

INTERVIEWER: What are some of the general complaints raised by users/members of coworking spaces?

INTERVIEWEE: The fine balance between community and privacy. We wanted to have super transparent spaces, shutting your door but your still next to someone. Physically this space hosts a lot of people with a different need. Some people want quiet and others want loud. Mitigating that is important. So we want as little rules as possible. Our team is on site, so if something happens we'll know. A big part of why we decided not to expand is because we wouldn't have our fingers on the pulse. We also do lots of events, but none are ever closed - which is a firm operational rule of ours. because we have 24/7 access. We also never have events where our members aren't welcome. What makes it hard is if coworking spaces want to sign big groups of 10 or 20 at a time and move in. But that often inconveniences the long term members. It's about finding the balance, not having too much, not asking too much of them, but also still including people.

INTERVIEWER: (overlapping) So it's a lot about the sensitivity of the ecosystem

INTERVIEWEE: Ja, definitely. When there are big events it is disruptive. So if you're keen and you want to go, great if not, it shouldn't disrupt you.

INTERVIEWER: With regards to the relevance of the IoT (Internet of Things), ICT (Information and Communications Technology) and disruptive innovation... do you have a view on the influence of either ICT and/or IoT on the use of coworking spaces? Please elaborate.

INTERVIEWEE: I think coworking spaces have arrived on the back of that whole tech revolution. Enabling people to be able to work remotely and work from anywhere. What comes directly hand-in-hand with that is the typical digital nomad, a lot of the people we have as members is in technology, blockchain and fintech etc. Something great that has happened here in our space is that we have two guys in our space - one is a winemaker and the other is a software engineer and they started a blockchain business together. This opened up for a lot of companies in this space that's not necessarily that comfortable with new innovative and disruptive technologies have the ability to access these ideas. It becomes more accessible. Once a month we have a blockchain meetup and its open to anybody to ask any questions. So where technology and interior architects used to be separated - and spaces before might have been one space, became the creative space, other spaces became the more corporate space. Having a certain level of servicing in coworking spaces is it enables all of the professional businesses to operate in one space.

It's making it more accessible. Graphic designers meeting promoters who know how blockchain works. Something that is worthwhile to their data collection or analysis for instance. Accessibility is like a movement and it's been the most impactful. UCT's graduate school has its impact investing events here, accessibility to information. We often speak of it - rather than a community be a collective knowledge system.

INTERVIEWER: Do you believe that there is a correlation between a desire for disruptive innovation and the use of coworking spaces? Please support with an example.

INTERVIEWEE: Yes definitely. Right at the beginning - people who have so much motivation to promote shared economy, it just makes so much sense. Metropolitan cities, when it comes to space, utilising spaces and not having an office space standing empty for months - I believe it goes hand in hand with having access to information. Coworking spaces have given a platform to disruptive tech or thoughts and economic systems.

INTERVIEWER: How, if at all, are coworking spaces contributing to the era of disruptive technologies and industry 4.0?

INTERVIEWEE: Access to information and to professional facilities in South Africa. Access to facilities where members can entertain their clients or a law firm that provides their first consultation free to other members of the space. The mobility and freedom to chat to other professionals in your space. Facilities, services. A lot of business stimulation - using the internal members' services. Instead of having to drive elsewhere we use those who are here. It stimulates growth internal, we vouch for the members in the space. Which helps their word of mouth. When we created the space we wanted packages that were really accessible - so that if you have no budget but you have to meet with Standard bank - that you can pay R300 for an hour and you can have professional services and a meeting room. It's more than that. Allowing companies to reinvest their cash flow into their business, as supposed to buying a printer for a lump sum. It's all part of the sharing economy and shared knowledge - it works along with the same principle.

INTERVIEWER: Is the utilisation and/or dependence on ICT or IoT of local businesses critical to the establishment of PropTech in South Africa?

INTERVIEWEE: I don't think so. I think there's a certain cultural element, one of market acceptance, technologies. I think the international influence that comes with tech and disruption, I think in general, there's only one direction property can go, when considering metropolitan cities - I don't think I know enough about the correlation to give you an accurate answer. But I don't necessarily think so.

INTERVIEWER: On local sentiment, is there any supporting evidence, to your knowledge, against increasing the supply/development of coworking spaces in Cape Town?

INTERVIEWEE: By virtue of the fact of bigger property groups joining in, I think it speaks for itself. There's a lot of opportunities. I don't know about anybody that holds enough to be able to undercut market prices, I can't foresee massive barriers in the promotion thereof.

INTERVIEWER: Is there any supporting evidence, to your knowledge, that the typology of coworking spaces allow for it to remain desirable to investors?

INTERVIEWEE: I think so. In the sense of everything moving into the shared economy space. We did a lot of research on tiny residential spaces, sustainability and effective use of space - we've had to come up with problem-solving in space. Inner city property, CBD, business hubs - people can't afford to have downtime with space. If I think about the number of hours, thinking, meeting, working that we've gotten out of ten square metres. It's an exponential value to be operative, it's so crazy. I connected property developers in Johannesburg who have an app where you can list any vacant space from parking bays to a room, to conference space. So like a one day only, last minute deal for any corporate space just to turn it over. If you look at rooftops being utilised - we can't do too much more. With the number of foreign investments - we've had a lot of interest of international investors that want to enter the market, instead of starting a business with their own ideas and concepts they want to take over SA business and just do the role out. We don't know why larger groups are raising so much money.

INTERVIEWER: Have investors and developers responded positively to discussions on coworking spaces?

INTERVIEWEE: We're in a space where we don't want to grow larger. The amount of people that has approached us, especially property investors that want an operational partner and

wanted to not disrupt our integrity - there's been so much interest. Whenever there's a new place, everybody wants a coworking partner. The demand has been quite high, but I do think the capital input to make a space fully efficient is more than assumed, It's not just a coffee machine and the internet always.

INTERVIEWER: (overlapping) Can you provide an example of the reasoning generally attributed to their responses?

INTERVIEWEE: We've had a lot of different interest and motivation. Residential developers want that attractiveness of feet through the door. Like the apartment block in Woodstock they did a night market to get feet through. A lot of property developers for residential has looked at it as supposed as having a lifestyle centre or offices that you rent out at the bottom, like rather having something collaborative like a coworking space with a coffee shop and a lounge. I think it's very demographically bound - like if someone builds a residential block in the suburbs they don't want to do that. But everything in CBD, Woodstock and Paardeneiland. A lot of developers look to coworking as an anchor tenant where you have a couple of 1000 square metres, you'll fill it out and it's your business to make certain there are tenants and people so I think on that side it works quite well. WeWork did Cowork, co-living. Which, you can't do everything. The motivation from investors has been quite different. A lot of people want to partner up for a business incubator - with Softco branding. The predominant one is being an anchor tenant and getting feet through the building.

Appendix C: Ethics Clearance

Application for Approval of Ethics in Research (EIR) Projects
Faculty of Engineering and the Built Environment, University of Cape Town

APPLICATION FORM

Please Note:
Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form before collecting or analysing data. The objective of submitting this application *prior* to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the EBE Ethics in Research Handbook (available from the UCT EBE, Research Ethics website) prior to completing this application form: http://www.ebe.uct.ac.za/ebe/research/ethics1

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant		Johan Bronkhorst
Department		Department of Construction Economics and Management
Preferred email address of applicant:		bronkhorstj@gmail.com
If Student	Your Degree: e.g., MSc, PhD, etc.	MSc Property Studies
	Credit Value of Research: e.g., 60/120/180/360 etc.	60
	Name of Supervisor (if supervised):	Kathy Michell
If this is a researchcontract, indicate the source of funding/sponsorship		n/a
Project Title		The impact of the Internet of Things on coworking space

I hereby undertake to carry out my research in such a way that:

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Johan Bronkhorst	Signature Removed	09/11/2018

APPLICATION APPROVED BY	Full name	Signature	Date
Supervisor (where applicable)	A/Prof Kathy Michell	Signature Removed	10 Nov 2018
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section1: and for all Undergraduateresearch (including Honours).	NJEN-TSU TUAN		12 Nov. 2018
Chair : Faculty EIR Committee **For applicants** other than **undergraduate** students who have answered YES to any of the above questions.		Signature Removed	

Page 1 of 1

Appendix D: Confidentiality form

The following standards will be adhered to while completing the research:

1. Measures will be taken in accordance with the requirement to ensure that ethical standards are upheld. These measures will be described below and adhered to for the remainder of the research period.

2. The identities of participants who complete questionnaires will be kept anonymous. The identities of interviewees will be kept confidential.

3. Information relating to arrangements for interviews specific to this dissertation will not be provided to external parties or published on online social media platforms.

4. All interviewees and participants will be provided with the opportunity to give consent. Personal information relating to interviewees and participants, including contact information, will be kept confidential.

5. Photographs of interviewees and participants will not be required and therefore not taken.

6. Questions will be limited to only extract information that is relevant to the research and will not extend to ascertain any additional information from either interviewees or participants in the questionnaire.

7. Recorded information that relates to the identity or personal details of either interviewees or participants will only be used to determine the legitimacy of responses and to follow up should any additional information be required for the purpose of this research.

8. Access to the information gathered will only be granted to the researcher, academic supervisor and external moderator for examination purposes should it be required.

Appendix E: Research Notes

Excerpt of the research notes and coding journal

Coding and Analysis

The critical nature of certain ideas was evident in the literature. A matrix was created to better understand the relationship between these ideas before performing the interviews, which helped to better formulate the interview questions and ensure the relevance thereof.

N1a: Coworking; N1b: Disruptive Innovation
N2a: Access;
N3a: Affordability; N3b: Nature of Work; N3c: Flexibility
Figure D1: Critical ideas identified in the literature

Coding Phase 1

The recorded audio clips from the interviews were individually transcribed using Microsoft Word, after which the documents were imported to NVivo. Open coding was initiated and resulted in the creation of eighty-six (86) open codes.

Coding Phase 2

The initial codes that were created and assigned during phase 1 were then refined to fifty-three (53) codes, arranged through axial coding and modelled as a dendrogram to visualise the relationship between the codes. Forty-two (42) of the fifty-three (53) codes could be merged to create ten (10) parent nodes, namely: Demand, Cost to rent; Membership Options; Working environment; Modus Operandi of Members; Relevance of Technological Innovation; Presence of Disruption; Facilities Management; Development Opportunity; and Investor Sentiment. Figure D2: Coding Phase 2 - Axial Coding

Coding Phase 3

The initial ideas that were identified in the literature were then used to see whether Affordability, Nature of Work or Flexibility was reflected in any of the ten (10) parent nodes. Affordability, Nature of Work and Flexibility had adequately served to be assigned as parent nodes to the remaining nine (9) child nodes. Figure D3: Coding Phase 3 - Selective Coding

Appendix F: Tree Node breakdown

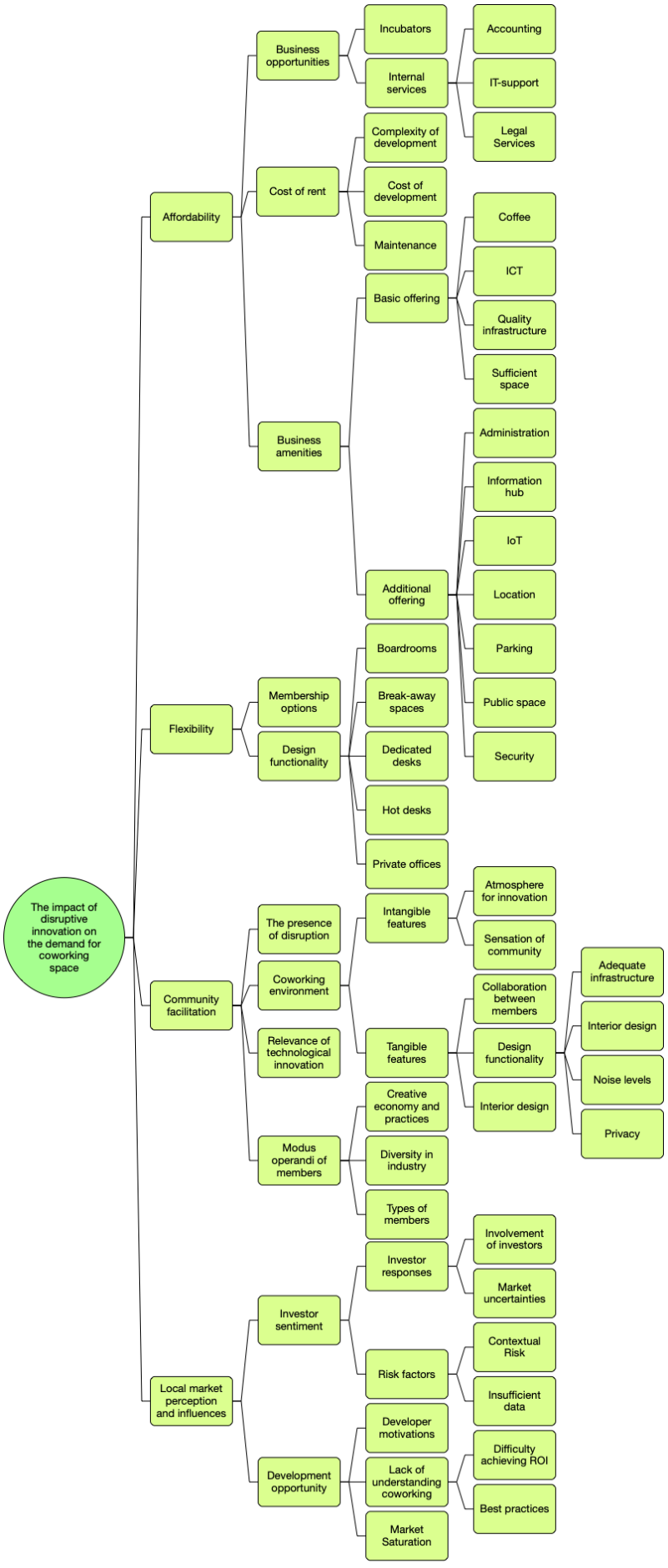
Tree Node Breakdown

No	Name	Generation	Files	References
1	Affordability	1	7	96
2	Business amenities	2	7	79
3	Additional offering	3	7	21
4	Administration	4	1	2
5	Information hub	4	3	3
6	IoT	4	5	5
7	Location	4	4	7
8	Parking	4	2	2
9	Public space	4	1	1
10	Security	4	1	1
11	Basic offering	3	7	16
12	Coffee	4	1	1
13	ICT	4	6	8
14	Quality infrastructure	4	5	6
15	Sufficient space	4	1	1
16	Business Opportunities	2	4	23
17	Incubators	3	3	4
18	Internal Services	3	5	13
19	Accounting Services	4	1	1
20	IT-support	4	2	2
21	Legal Services	4	1	1
22	Cost of Rent	2	3	7
23	Complexity of development	3	1	1
24	Cost of development	3	1	2
25	Maintenance	3	1	2
26	Community facilitation	1	7	74
27	Coworking environment	2	7	51
28	Intangible Factors	3	7	28
29	Atmosphere for innovation	4	4	4
30	Sensation of community	4	6	24
31	Tangible Factors	3	7	23

No	Name	Generation	Files	References
32	Collaboration between members	4	5	9
33	Design functionality	4	3	14
34	Adequate infrastructure	5	2	2
35	Interior Design	5	1	1
36	Noise Levels	5	3	4
37	Privacy	5	2	2
38	Modus operandi of members	2	6	17
39	Creative economy and practices	3	6	16
40	Diversity in industry	3	1	1
41	Presence of disruption	3	5	22
42	Disruption	4	7	22
43	Relevance of technological innovation	2	3	6
44	Coworking and technology revolution	3	3	6
45	Flexibility	1	7	24
46	Facilities management	2	7	23
47	Design Functionality	3	7	17
48	Boardrooms	4	3	3
49	Break-away spaces	4	1	1
50	Dedicated Desks	4	1	1
51	Hot Desks	4	4	4
52	Private Offices	4	3	2
53	Operations	3	2	5
54	Willingness to adapt to environment	4	1	1
55	Sustainability	3	1	1
56	Membership options	2	1	1
57	Matching with a coworking space	3	1	1
58	Local market perception and influences	1	7	73
59	Development opportunity	2	7	34
60	Developer motivation	3	7	7
61	Lack of understanding the market	3	5	27
62	ROI preference	4	3	6

No	Name	Generation	Files	References
63	Best practises	4	4	8
64	Difficulty achieving ROI	4	4	9
65	Market saturation	3	5	10
66	Investor Sentiment	2	7	39
67	Investor responses	3	3	7
68	Market uncertainties	4	2	2
69	Investor involvement	4	1	5
70	Risk Factors	3	7	32
71	Contextual Risk	4	1	1
72	Non-Essential Views	4	1	2
73	Insufficient data	4	1	1
74	Misconceptions of investors	4	4	5
75	Market Awareness	4	4	3
76	Supply	4	2	19

Appendix G: Dendrogram



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